

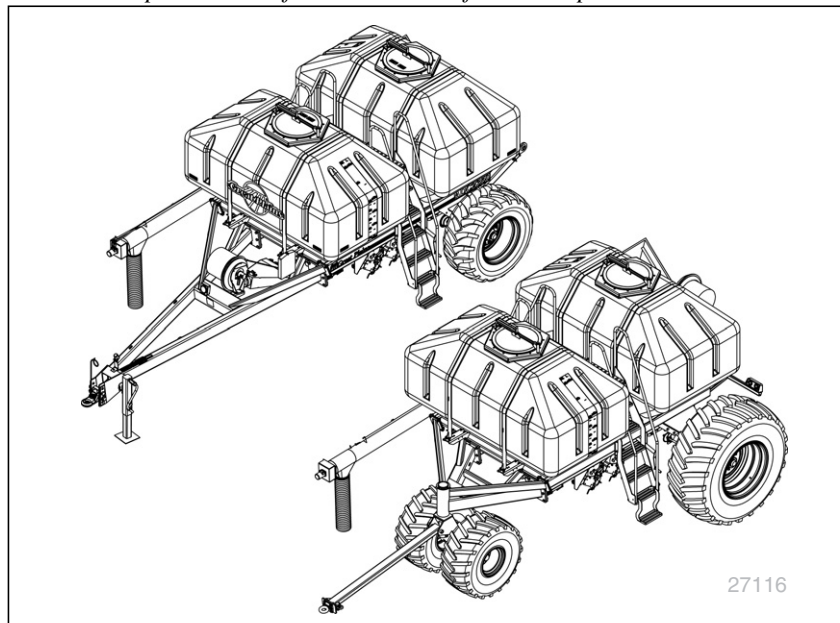
Operator Manual

ADC2350, ADC2350E,
ADC2350B and ADC2350BE

Air Drill Carts



Read the operator manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!



Illustrations may show implement and optional equipment not supplied with standard unit or may depict similar ADC2220 carts where a topic is identical.

ORIGINAL INSTRUCTIONS



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Important Safety Information

Look for Safety Symbol

The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.



Be Aware of Signal Words

Signal words designate a degree or level of hazard seriousness.

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



Prepare for Emergencies

- ▲ Be prepared if a fire starts
- ▲ Keep a first aid kit and fire extinguisher handy.
- ▲ Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.



Be Familiar with Safety Decals

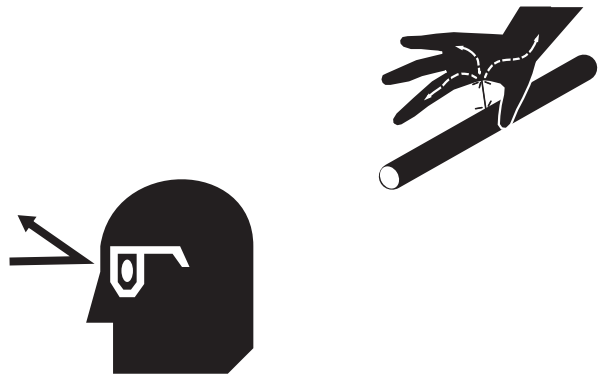
- ▲ Read and understand “**Safety Decals**” on page 6, thoroughly.
- ▲ Read all instructions noted on the decals.
- ▲ Keep decals clean. Replace damaged, faded and illegible decals.



Avoid High Pressure Fluids

Escaping fluid under pressure can penetrate the skin, causing serious injury.

- ▲ *Avoid the hazard by relieving pressure before disconnecting hydraulic lines.*
- ▲ *Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.*
- ▲ *Wear protective gloves and safety glasses or goggles when working with hydraulic systems.*
- ▲ *If an accident occurs, seek immediate medical attention from a health care provider familiar with this type of injury.*



Use A Safety Chain

- ▲ *Use a safety chain to help control drawn machinery should it separate from tractor drawbar.*
- ▲ *Use a chain with a strength rating equal to or greater than the gross weight of towed machinery.*
- ▲ *Attach chain to tractor drawbar support or other specified anchor location. Allow only enough slack in chain to permit turning.*
- ▲ *Replace chain if any links or end fittings are broken, stretched or damaged.*
- ▲ *Do not use safety chain for towing.*



Keep Riders Off Machinery

Riders obstruct the operator's view. Riders could be struck by foreign objects or thrown from the machine.

- ▲ *Never allow children to operate equipment.*
- ▲ *Keep all bystanders away from machine during operation.*



Use Safety Lights and Devices

Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.

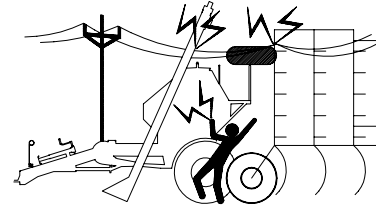
- ▲ *Use flashing warning lights and turn signals whenever driving on public roads.*
- ▲ *Use lights and devices provided with air cart and drill.*



Check for Overhead Lines

Seed auger or drill markers contacting overhead electrical lines can introduce lethal voltage levels on air cart, drill and tractor frames. A person touching almost any metal part can complete the circuit to ground, resulting in serious injury or death. At higher voltages, electrocution can occur without direct contact.

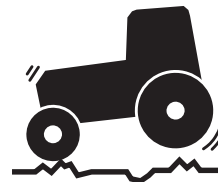
- ▲ *Avoid overhead lines during seed loading, unloading and marker operations.*



Transport Machinery Safely

Maximum transport speed for air cart is 20 mph (32 km/h). Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.

- ▲ *Latch auger.*
- ▲ *Do not tow a load that weighs more than 1.5 times the weight of the tractor.*
- ▲ *Do not exceed 20 mph (32 km/h). Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.*
- ▲ *Comply with national, regional and local laws.*
- ▲ *Follow your tractor manual recommendations for maximum hitch loads. Insufficient weight on tractor steering wheels will result in loss of control.*
- ▲ *Carry reflectors or flags to mark air cart and drill in case of breakdown on the road.*
- ▲ *Keep clear of overhead power lines and other obstructions when transporting. Refer to transport dimensions under “Specifications and Capacities” on page 87.*



Wear Protective Equipment

- ▲ *Wear protective clothing and equipment.*
- ▲ *Wear clothing and equipment appropriate for the job. Avoid loose-fitting clothing.*
- ▲ *Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection such as earmuffs or earplugs.*
- ▲ *Because operating equipment safely requires your full attention, avoid wearing entertainment headphones while operating machinery.*



Handle Chemicals Properly

Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil and property.

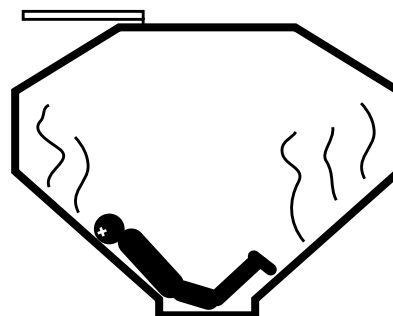
- ▲ *Do not use liquid treatments with air cart.*
- ▲ *Read and follow chemical manufacturer's instructions.*
- ▲ *Wear protective clothing.*
- ▲ *Handle all chemicals with care.*
- ▲ *Avoid inhaling smoke from any type of chemical fire.*
- ▲ *Never drain, rinse or wash dispensers within 100 feet of a freshwater source, nor at a car wash.*
- ▲ *Store or dispose of unused chemicals as specified by chemical manufacturer.*
- ▲ *Dispose of empty chemical containers properly. Laws generally require power rinsing or rinsing three times, followed by perforation of the container to prevent re-use.*



Confined Space

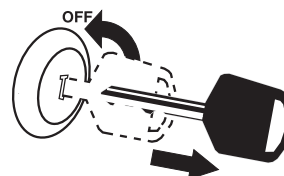
Once used for hazardous fertilizers, or seeds with hazardous treatments, your hoppers may become “permit-required confined spaces” under applicable statutes, regulations, insurance rules or business policy. The ladder provided in the hoppers is for escape, not routine entry.

- ▲ *A hopper that is full or merely appears full can be an entrapment hazard. You can sink entirely into the grain, or into a void, and suffocate in a matter of seconds. Grain bridges and crusts are especially dangerous.*
- ▲ *When hazardous fumes are present, you can be quickly overcome even with the hopper lid open.*
- ▲ *Do not enter a hopper for material loading, material unloading, hopper cleaning or meter maintenance.*
- ▲ *Clean hopper by power washing from outside hopper top.*
- ▲ *Perform meter maintenance by removing meters from bottom of empty hopper.*
- ▲ *If obstruction removal or repair requires hopper entry, have the work performed by a team trained in confined space procedures. See “Hopper Entry” on page 78.*



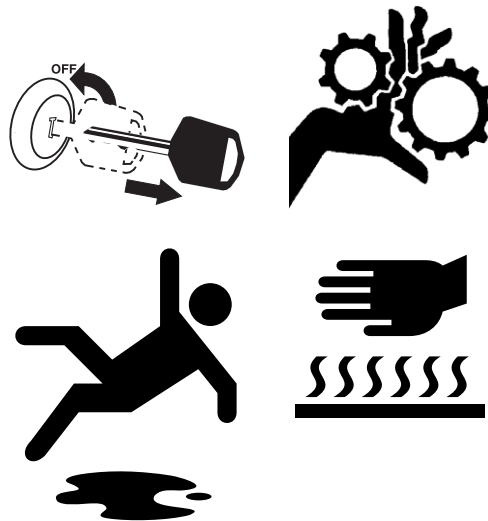
Shutdown and Storage

- ▲ *Clean out and safely store or dispose of residual chemicals.*
- ▲ *Secure air cart using blocks and the stand provided.*
- ▲ *Store in an area where children normally do not play.*



Practice Safe Maintenance

- ▲ *Understand procedure before doing work. Use proper tools and equipment. Refer to this manual for additional information.*
- ▲ *Work in a clean, dry area.*
- ▲ *Put tractor in park, turn off engine, and remove key before performing maintenance.*
- ▲ *Make sure all moving parts have stopped and all system pressure is relieved.*
- ▲ *Disconnect battery ground cable (-) before servicing or adjusting electrical systems or before welding on cart.*
- ▲ *Inspect all parts. Make sure parts are in good condition and installed properly.*
- ▲ *Remove buildup of grease, oil or debris.*
- ▲ *Remove all tools and unused parts from drill before operation.*



Tire Safety

Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.

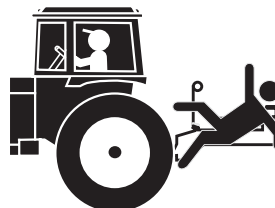
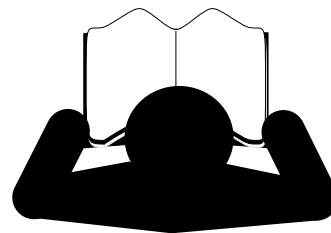
- ▲ *When inflating tires, use a clip-on chuck and extension hose long enough for you to stand to one side—not in front of or over tire assembly. Use a safety cage if available.*
- ▲ *When removing and installing wheels, use wheel-handling equipment adequate for weight involved.*



Safety At All Times

Thoroughly read and understand the instructions in this manual before operation. Read all instructions noted on the safety decals.

- ▲ *Be familiar with all air cart and drill functions.*
- ▲ *Operate machinery from the driver's seat only.*
- ▲ *Do not leave air cart unattended with tractor engine running.*
- ▲ *Do not dismount a moving tractor. Dismounting a moving tractor could cause serious injury or death.*
- ▲ *Do not stand between the tractor and air cart during hitching.*
- ▲ *Keep hands, feet and clothing away from power-driven parts.*
- ▲ *Wear snug-fitting clothing to avoid entanglement with moving parts.*



Safety Decals

Safety Reflectors and Decals

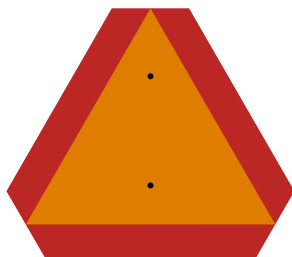
Your air cart comes equipped with all lights, safety reflectors and decals in place. They were designed to help you safely operate your air cart.

- ▲ *Read and follow decal directions.*
- ▲ *Keep lights in operating condition.*
- ▲ *Keep all safety decals clean and legible.*
- ▲ *Replace all damaged or missing decals. Order new decals from your Great Plains dealer. Refer to this section for proper decal placement.*
- ▲ *When ordering new parts or components, also request corresponding safety decals.*

To install new decals:

1. Clean the area on which the decal is to be placed.
2. Peel backing from decal. Press firmly on surface, being careful not to cause air bubbles under decal.

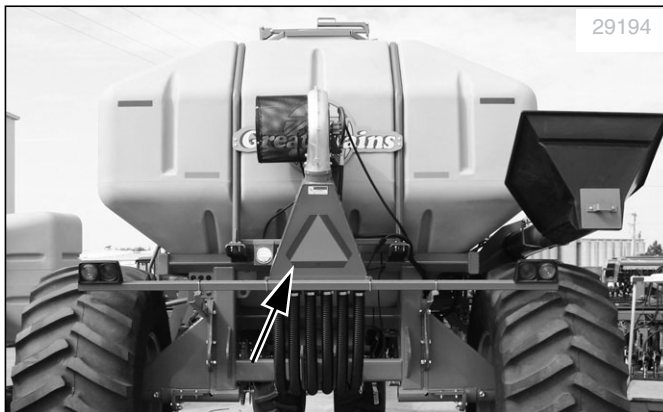
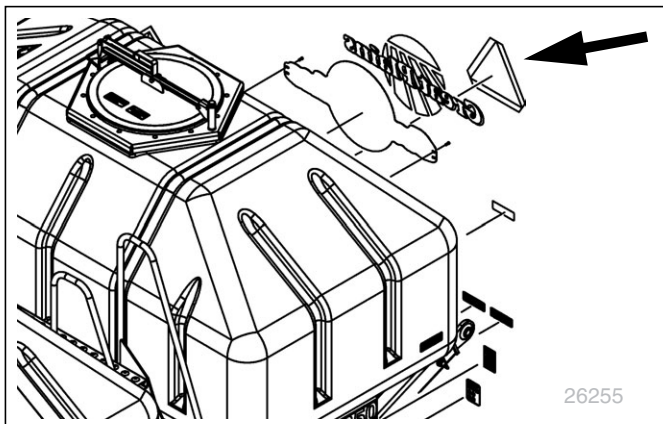
818-055C



Slow Moving Vehicle Reflector

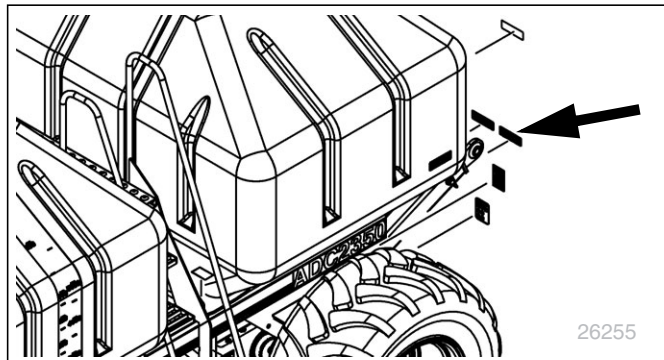
ADC2350/E: On the back of the aft hopper, frame center;
1 total

ADC2350B/BE: On the back face of the fan air manifold;
1 total



838-266C**Red Reflectors**

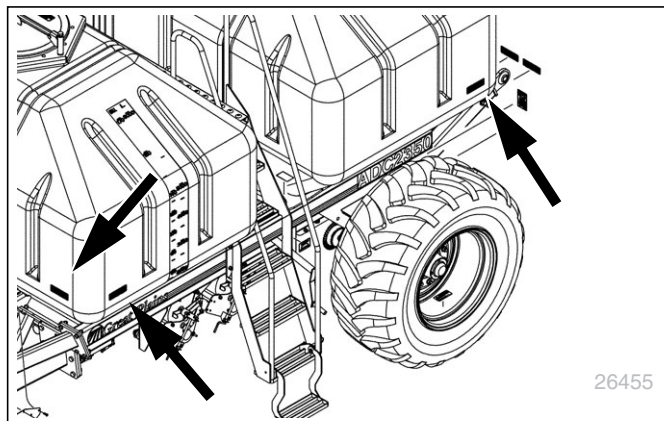
ADC2350/E: On the outside corners of aft hopper frame;
2 total



ADC2350B/BE: On rear face of rear hopper, top outside
corners;
2 total

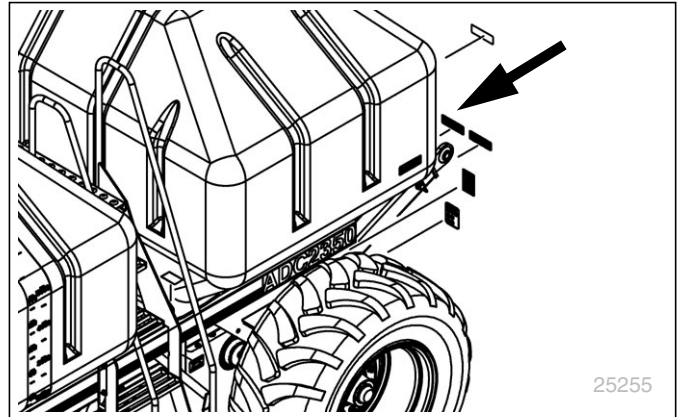
**838-265C****Amber Reflectors**

Front and outside leading corner of front hopper,
outside rear corner of rear hopper;
6 total



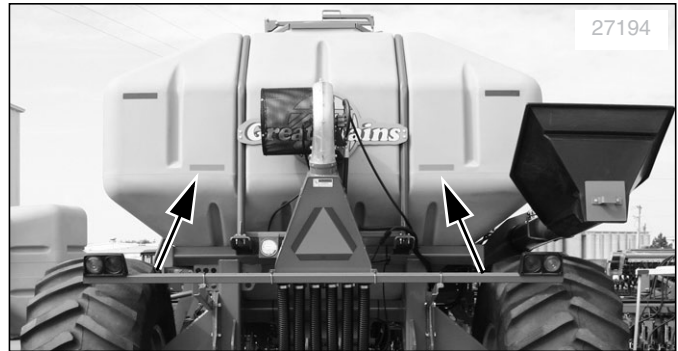
838-267C**Daytime Reflectors**

ADC2350/E: On the outside corners of aft hopper frame, just inside red reflectors; 2 total



25255

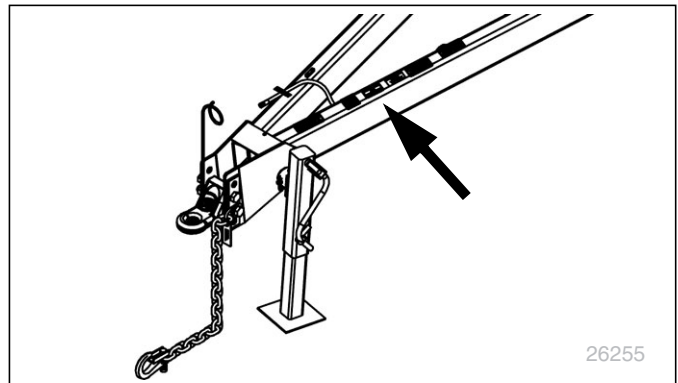
ADC2350B/BE: On the rear face of the rear hopper, lower edge just outside hold-down straps; 2 total



27194

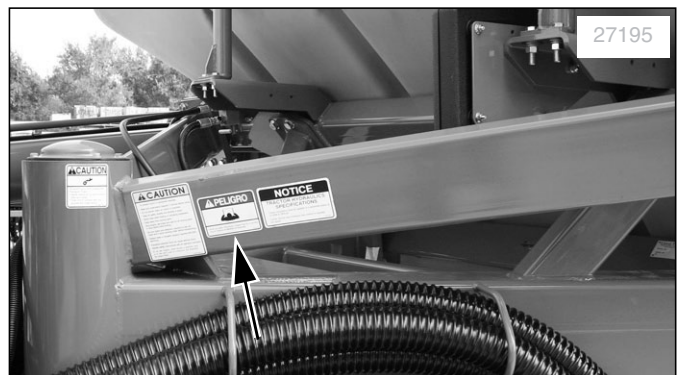
818-557C**Danger: Cannot Read English**

ADC2350/E: On top of left draw bar near hitch, 1 total

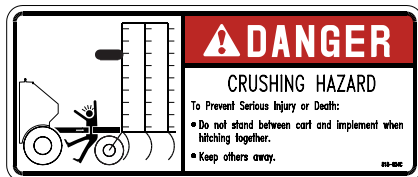


26255

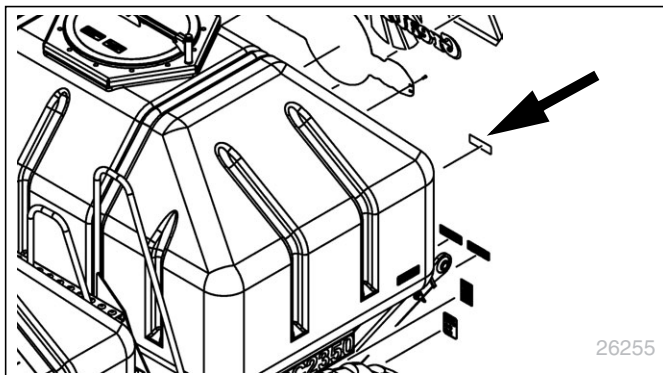
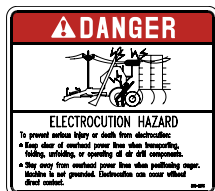
ADC2350B/BE: On side of left frame near caster pivot, 1 total



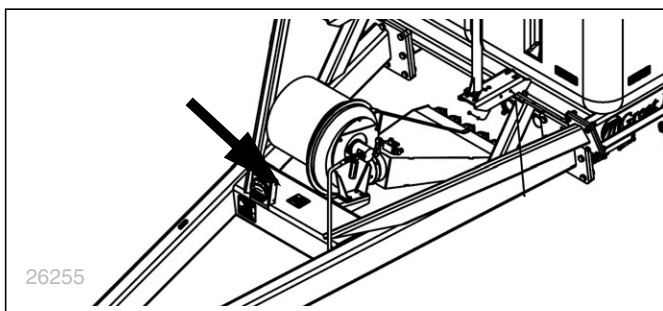
27195

818-624C**Danger: Hitch Crushing Hazard**

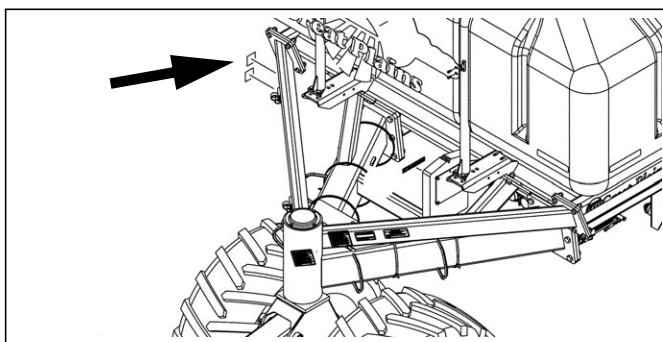
ADC2350/E: On the left vertical beam at rear hitch,
 ADC2350/E: On the tongue at front hitch,
 (not present on ADC2350B/BE);
 2 total

**818-627C****Danger: Electrocuting Hazard**

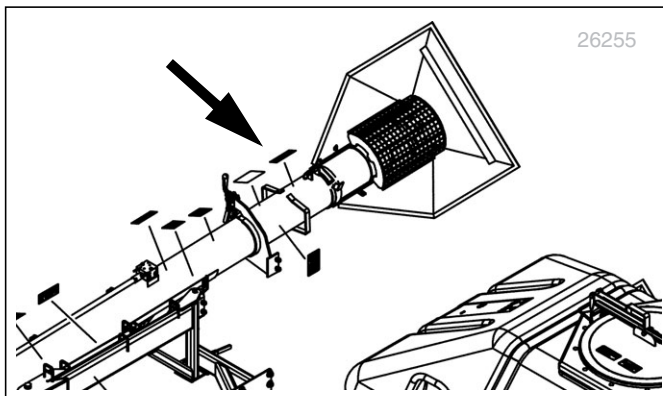
ADC2350/E: On the crossbar aft of hitch,
 1 total

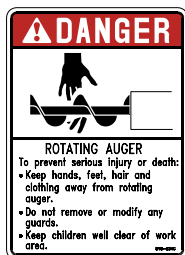


ADC2350B/BE: On the right side, outside face of front frame;
 2 total

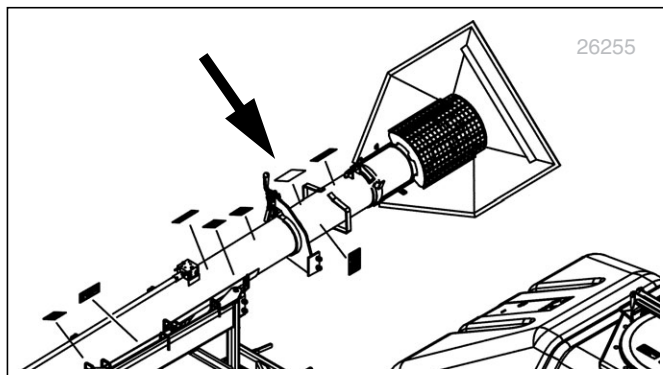
**818-633C****Danger: Missing Guard Hazard**

On the auger tube near inlet,
 1 total

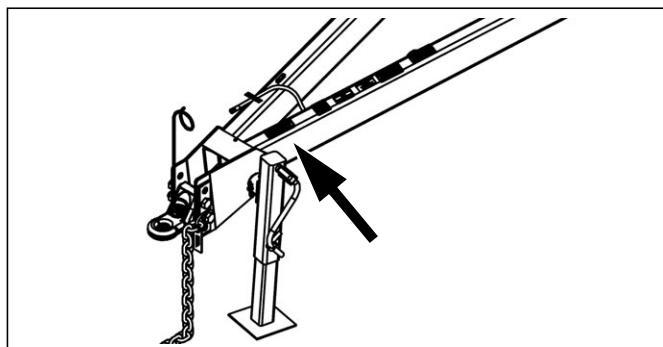


818-634C**Danger: Rotating Auger**

On the auger tube near inlet,
1 total

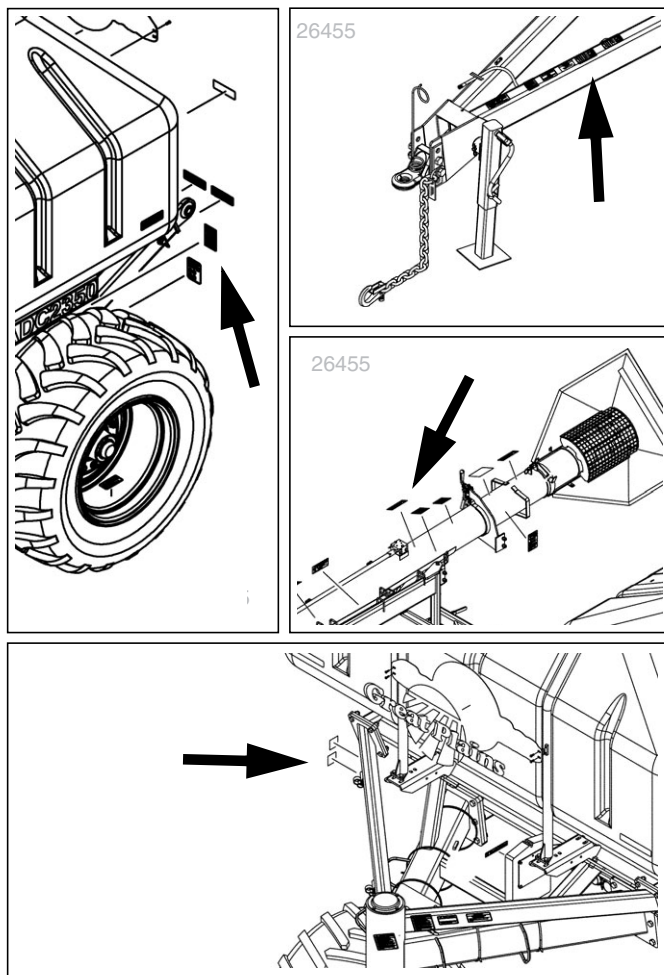
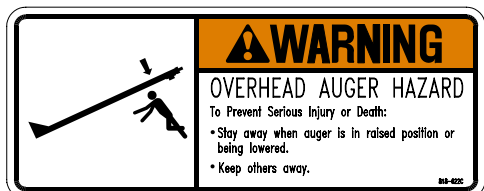
**818-188C****Warning: Excessive Speed**

Both Models: On top of tongue at hitch;
1 total

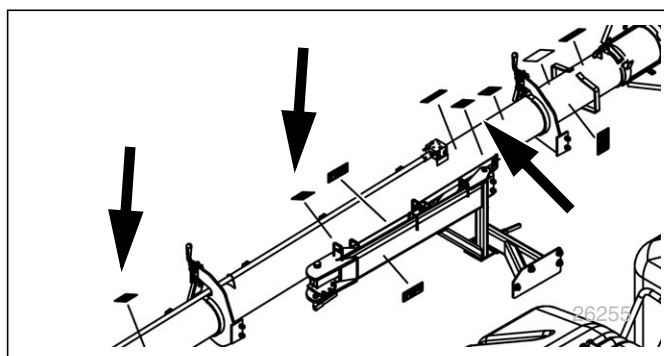


818-339C**Warning: High Pressure Fluid Hazard**

At hydraulic connection panel (ADC2350/E only),
 on hitch right drawbar (ADC2350/E only),
 on frame below selector valve (ADC2350B/BE only),
 on seed auger near hand-hold;
 3 total

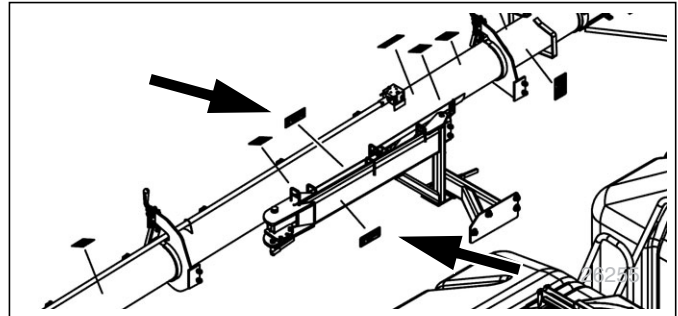
**818-622C****Warning: Overhead Auger Hazard**

On auger near each end,
 1 total

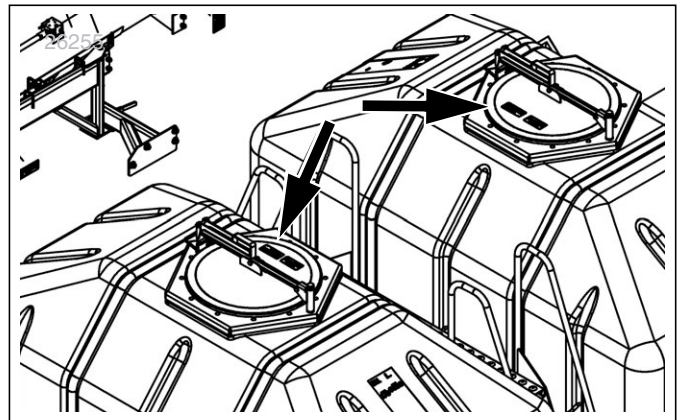


818-623C**Warning: Pinch Point Hazard**

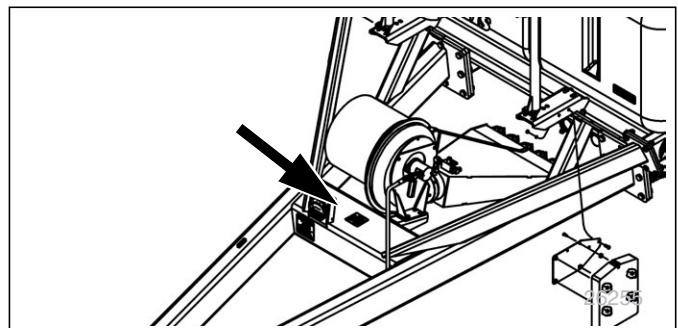
On both sides of auger swing arm;
2 total

**818-628C****Warning: Confined Space**

On lid, walkboard side, each hopper;
2 total

**818-632C****Warning: Fan Hazard**

ADC2350/E: On the cross brace at fan,
1 total



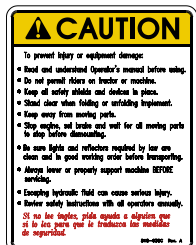
ADC2350B/BE: On the back face of the fan air
manifold;
1 total



818-398C**Caution: Tires Not A Step**

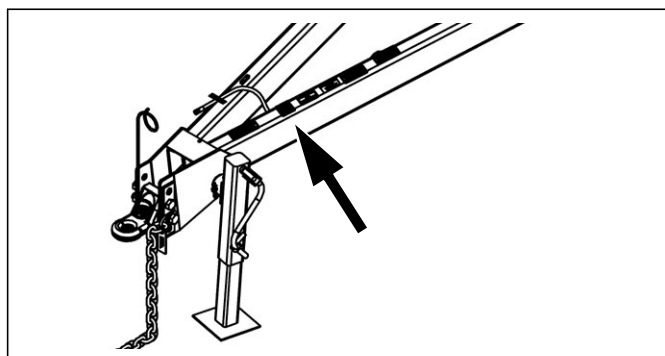
ADC2350B/BE: On top left face of caster pivot, (not present on ADC2350B/BE)

1 total

**818-630C****Caution: General**

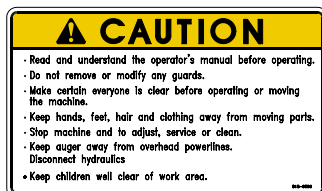
ADC2350/E: On the main tool bar at hitch;

1 total



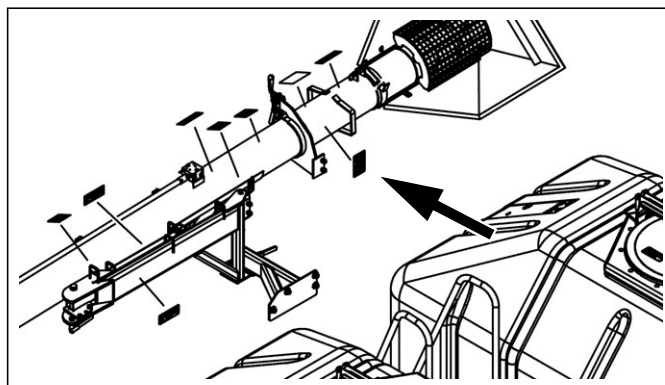
ADC2350B/BE: On outside face, front right frame;

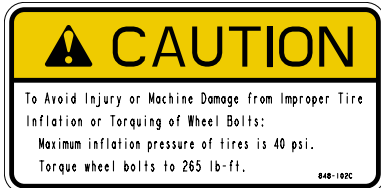
1 total

**818-635C****Caution: Auger General**

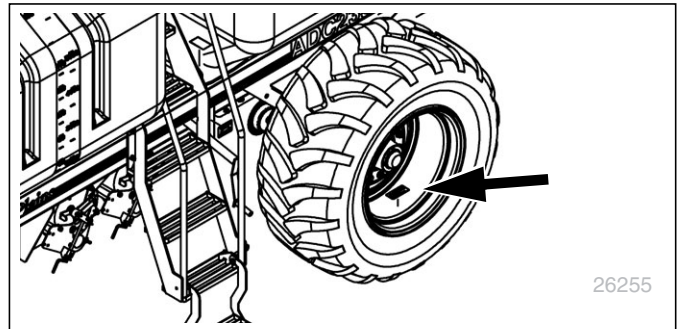
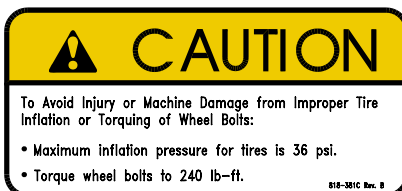
On discharge end of auger:

1 total

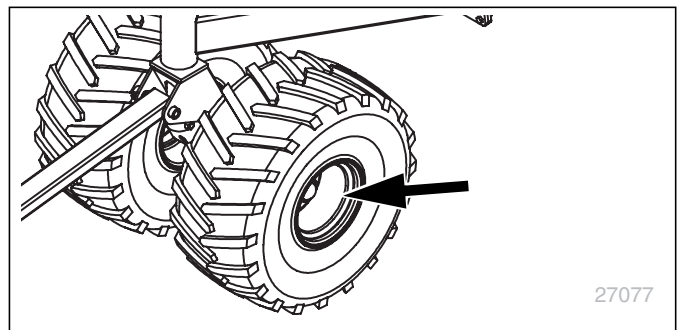
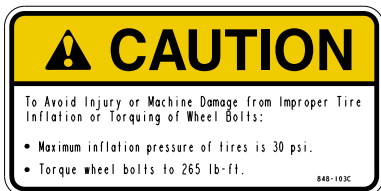


848-102C**Caution: Tire Pressure**

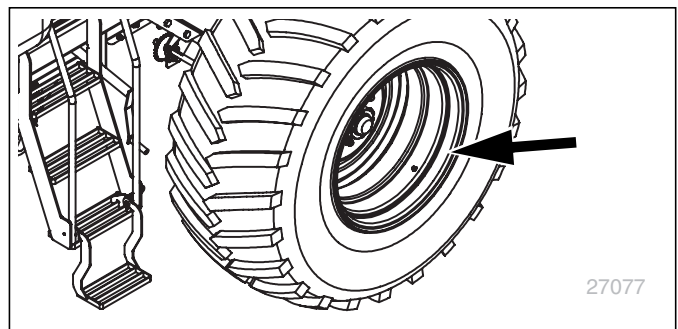
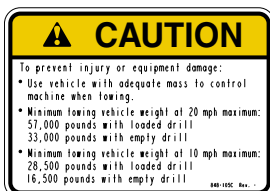
ADC2350/E: On each wheel rim:
2 total

**818-381C****Caution: Tire Pressure**

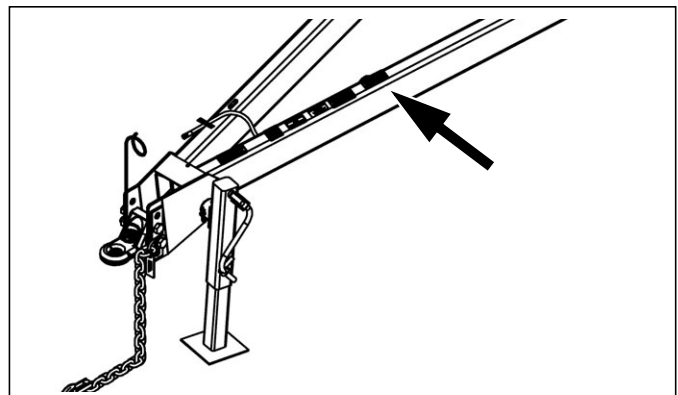
ADC2350B/BE: On each caster wheel rim:
2 total

**848-103C****Caution: Tire Pressure**

ADC2350B/BE: On each main wheel rim:
2 total

**848-105C****Caution: Towing**

ADC2350/E: On the right draw bar at hitch
(not present on ADC2350B/BE);
1 total



Introduction

Great Plains welcomes you to its growing family of new product owners. Your Air Drill Cart has been designed with care and built by skilled workers using quality materials. Proper setup, maintenance, and safe operating practices will help you get years of satisfactory use from the machine.

Air Cart Document Family

167-085M	Owner's Manual (this document)
167-085B	Seed Rate Charts
167-085P	Parts Manual
110011439	IntelliAg [®] 5in Terminal
110011440	IntelliAg [®] 10in Terminal
110011445	IntelliAg [®] User Manual
110011459	IntelliAg [®] CTA Quick Start Guide
110011460	IntelliAg [®] NTA Quick Start Guide
110011461	IntelliAg [®] 3N40 Quick Start Guide

Description of Unit

The (ADC2350/E and ADC2350B/BE are pull-type implements for volumetric seeding. A hydraulic fan creates an airflow to supply seed and dry treatments to a compatible leading or trailing Great Plains drill.

The ADC2350 or ADC2350E (ADC2350/E) Air Drill Cart is compatible with the following Great Plains air drills:

- CTA4000 40-foot Conventional Tillage Air Drill, Model Year 2007 or later (see note^a), ADC2350/E air cart leading
- CTA4000HD Heavy Duty tillage Air Drill, ADC2350/E air cart leading
- NTA3010 30-foot No-Till Air Drill, Model Year 2007 or later (see note^a), ADC2350/E air cart leading
- NTA3510 35-foot No-Till Air Drill, Model Year 2007 or later (see note^a), ADC2350/E air cart leading

The ADC2350B or ADC2350BE (ADC2350B/BE) Air Drill Cart is compatible with the following Great Plains air drill:

- 3N-4010HDA 3-Section 40-foot Heavy Duty Air Drill ADC2350B/BE air cart trailing

The ADC2350E and ADC2350BE are export models, and are otherwise identical to the ADC2350 and ADC2350B, respectively.

Drills introduced after the release of this manual may also be compatible. Consult your Great Plains dealer.

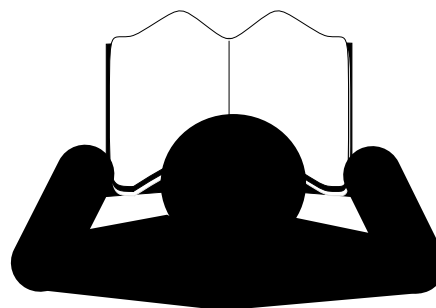


Figure 1
ADC2350/E Air Cart Leading Drill

26360



Figure 2
Drill Leading ADC2350B/BE Air Cart

27078

a. Earlier model drills require upgrades for compatibility with the ADC2350/E and ADC2350B/BE Air Drill Cart.

Intended Usage

Use the air cart and drill to seed production-agriculture crops only. Do not modify the air cart for use with attachments other than Great Plains options and accessories specified for use with the air cart.

Using This Manual

This manual will familiarize you with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.

The information in this manual is current at printing. Some parts may change to assure top performance.

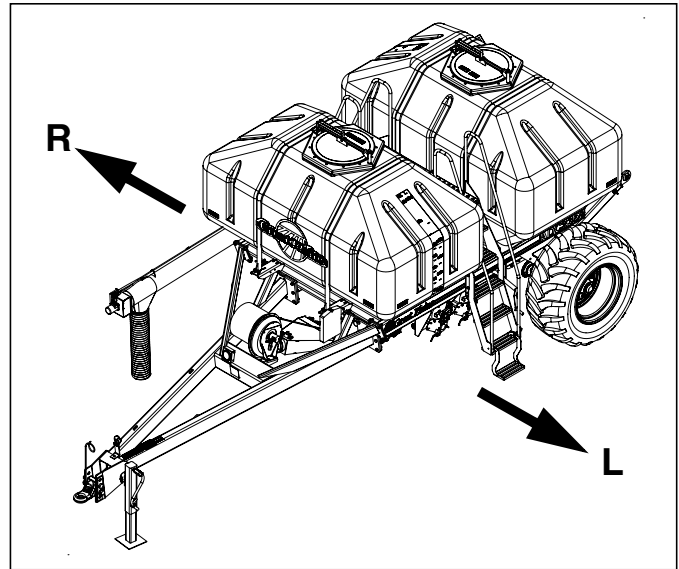


Figure 3
ADC2350/E: Left/Right Notation

26254

Definitions

The following terms are used throughout this manual.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use unless otherwise stated.

NOTICE

Paragraphs in this format present a crucial point of information related to the current topic.

Read and follow the directions to:

- remain safe,
- avoid serious damage to equipment and
- ensure desired field results.

Note: Paragraphs in this format provide useful information related to the current topic.

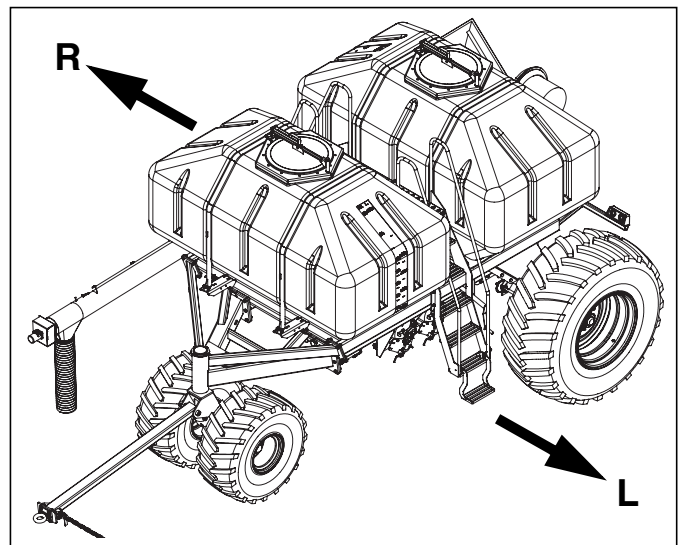


Figure 4
ADC2350B/BE: Left/Right Notation

27077

Owner Assistance

If you need customer service or repair parts, contact a Great Plains dealer. They have trained personnel, repair parts and equipment specially designed for Great Plains products.

Refer to Figure 5

Your machine's parts were specially designed and should only be replaced with Great Plains parts. Always use the serial and model number when ordering parts from your Great Plains dealer. The serial-number plate is located on the left side of the cart frame below the front hopper.

Record your air cart model and serial number here for quick reference:

Model Number: _____

Serial Number: _____

Your Great Plains dealer wants you to be satisfied with your new machine. If you do not understand any part of this manual or are not satisfied with the service received, please take the following actions.

1. Discuss the matter with your dealership service manager. Make sure they are aware of any problems so they can assist you.
2. If you are still unsatisfied, seek out the owner or general manager of the dealership.

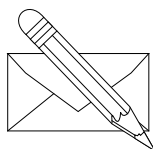
For further assistance write to:

Product Support

Great Plains Mfg. Inc., Service Department

PO Box 5060

Salina, KS 67402-5060



gp_web_cs@greatplainsmfg.com

785-823-3276

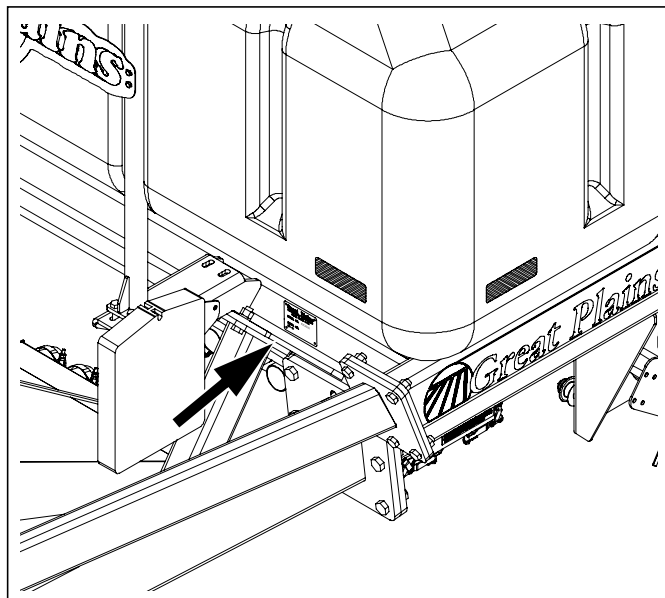


Figure 5
Serial Number Plate

26428

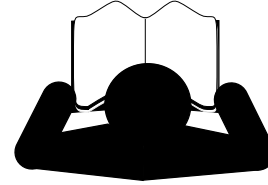


Preparation and Setup

This section helps you prepare your tractor, air cart and drill for use. Before using the air cart in the field, you must hitch the air cart to a suitable tractor, compatible drill, and also setup the drill.

Pre-Setup Checklist

1. Read and understand “**Important Safety Information**” on page 1.
2. Check that all working parts are moving freely, bolts are tight, and cotter pins are spread.
3. Check that all grease fittings are in place and lubricated. See “**Lubrication and Scheduled Maintenance**” on page 80.
4. Check that all safety decals and reflectors are correctly located and legible. Replace if damaged. See “**Safety Decals**” on page 6.
5. Inflate tires to pressure recommended and tighten wheel bolts as specified. “**Appendix**” on page 87.



Installing Seed Monitor Terminal

The ADC2350/E and ADC2350B/BE cart standard seed monitor system includes a virtual terminal that must be mounted in the tractor cab. The kit includes an “H” bracket for any modules, and a ball swivel for mounting the bracket in the tractor.

NOTICE

Mount the modules so that they are easy to observe during planting, but do not interfere with safe operation of the tractor in the field or on public roads.

The ball swivel includes four 10-32 screws. You or your dealer must provide the mounting holes for the screws. Your dealer may have alternate suction cup or clamping brackets available if you prefer to avoid drilling holes.

See the DICKEY-john® manual for harness connections. The monitor needs to be configured with information about your air drill, after hitching and electrical connections. See “**Setup Seed Monitor for Air Drill**” on page 29.

Once configured for your drill and your material, the seed monitor performs the following functions:

On the Implement:

- Implement lift switch monitoring
- Fold function control (on some drill models)
- Seed flow blockage detection (optional)

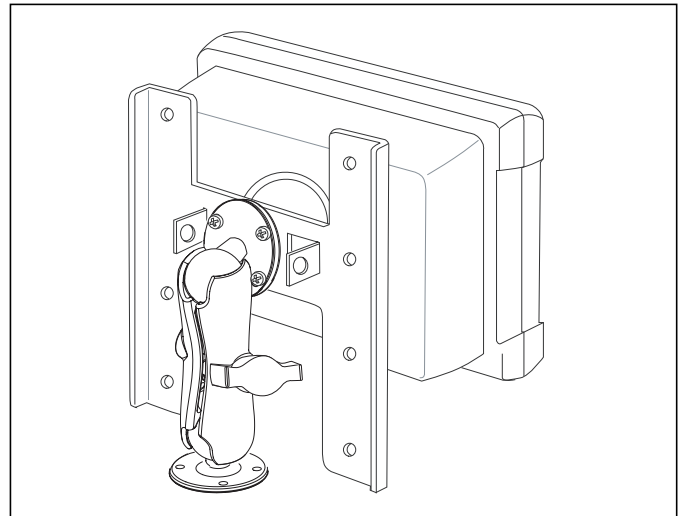


Figure 6
Terminal and Mount Hardware

26429

On the Air Cart:

- Fan Speed monitoring
- Hopper material level monitoring
- Hopper air pressure monitoring
- Meter rate monitoring (seed rate control, optional)
- Ground speed monitoring

Cart Drive System

Refer to Figure 7, Figure 8 and table below

Sprockets on the cart need to be checked to ensure that the seeding rates for your implement match those in the Seed Rate manual.

The sprockets are factory-installed for a specific implement, and may be incorrect if the cart is ultimately delivered with a different implement. Once configured for a particular implement, cart meter rate is determined by the variable rate gearboxes and final drive range gears.

Cart Sprocket Setup

Implement	Inner Main Driveshaft	Clutch Output	Manifold Outlets
CTA4000	30T	24T	5 Towers
CTA4000HD	30T	24T	5 Towers
NTA3010	30T	23T	4 Towers
NTA3510	26T	24T	5 Towers
3N-4010HDA	39T	20T	6 Towers

Consult the table above. If any sprockets are found to not match the table, contact your dealer for the correct replacement sprockets.

Conversion requires one drive shaft output sprocket and two (2) clutch output sprockets.

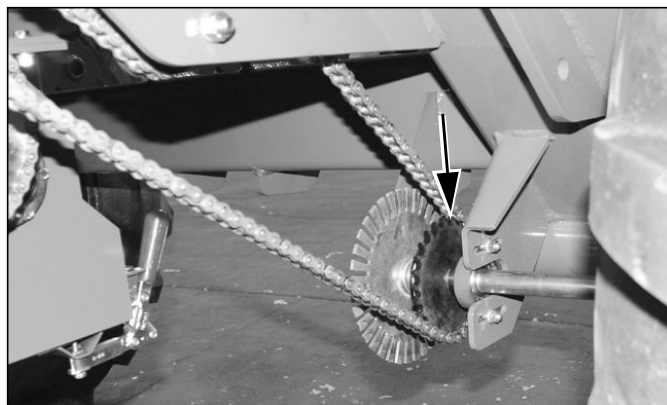


Figure 7
Inner Main Driveshaft Sprocket

26238

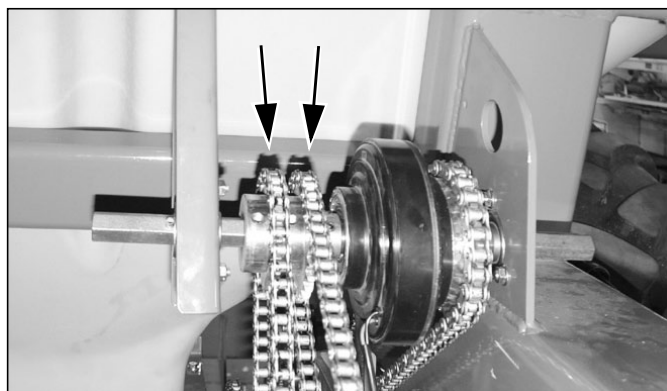


Figure 8
Clutch Output Sprockets

26327

Hitching

⚠ DANGER

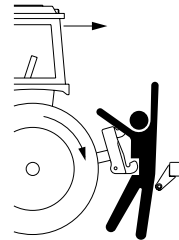
Crushing Hazard:

You may be severely injured or killed by being crushed between the tractor, air cart and drill. Do not stand or place any part of your body between machines being hitched. Stop tractor engine and set park brake before installing hitch pins.

When ready for planting, the air cart is part of an assembly that includes the tractor, the air cart, and the drill.

When hitching for the first time, hitch the leading implement (cart or drill) first.

Once the air cart and drill are hitched together, they are usually left connected, unless parking or storage considerations require separation.



ADC2350/E Hitching

This manual includes full details only for the leading air cart's forward hitch. Consult the drill manual for trailing drill hitching.

The air cart must be hitched to the tractor first. Continue with **ADC2350/E “Pull Between” Hitching** on the next page.



Figure 9
Complete ADC2350/E Assembly

26360

ADC2350B/BE Hitching

The drill must be hitched to the tractor first, and the air cart is then hitched to the drill. Continue with to **“Hitching ADC2350B/BE to Leading Drill”** on page 26.



Figure 10
Complete ADC2350B/BE Assembly

27079

ADC2350/E “Pull Between” Hitching

Hitching ADC2350/E to Tractor

To ensure consistent planting at the drill, the main frame of the ADC2350/E air cart needs to be level. Set the tongue height before hitching for the first time.

Refer to Figure 11

1. Using the crank on the jack stand ①, adjust the height ② of the tongue to:
31 inches (78.7 cm).
The cart frame is level at this height.
2. Back the tractor up to the cart, and confirm that when hitched, the cart tongue will remain at this height. If not, adjust either the height of the tractor hitch, or the location of the hitch strap ⑤.

To adjust the height of the hitch strap ⑤, remove the bolts ④, and reset the strap up or down.

If the strap needs to be moved so far that only one bolt would be holding it, the strap may be inverted. Strap inversion requires removing the bolt that retains the spring hose loop ③, and re-mounting it.

3. Use the jack stand crank ① to raise the hitch strap slightly. Back the tractor so that its drawbar is aligned with the strap hole.
4. Shut off the tractor and set the parking brake.
5. Insert and secure the hitch pin.
6. Attach the safety chain ⑥ to an anchor on the tractor.
7. Operate the jack stand crank to retract the inner leg and base several inches. Secure the crank handle in the spring clip on the stand.
8. Remove the pin ⑦ at the stand swivel. Remove the stand and re-pin it on the storage stob ⑧ (not visible in figure) inside the hitch beam.

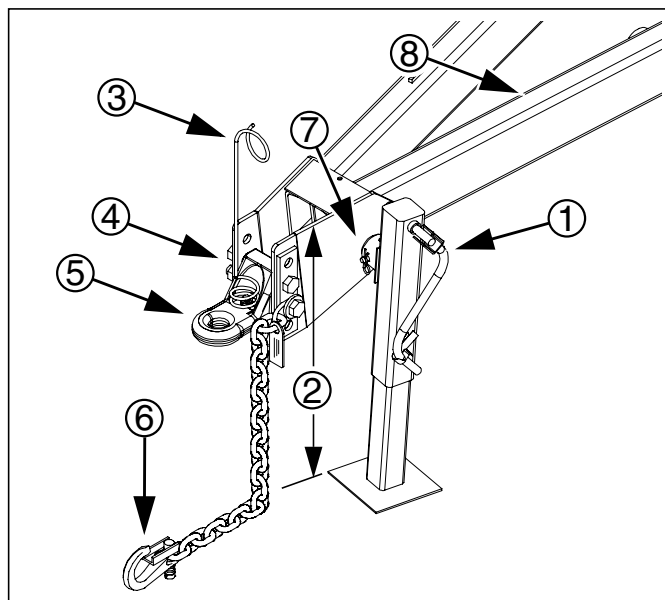


Figure 11
Hitch: Cart Leads Drill

26300

Make ADC2350/E Seed Hose Connections

ADC2350/E seed hose connections are made at the back of the cart and are clamped. ADC2350B/BE seed hose connections (page 26) are made at the front of the cart, and are couplers.

Refer to Figure 12 and Figure 13

Connect primary seed hoses (tower feed hoses) from drill to their respective outlets on the cart meter box, in left to right order.

Skip any capped outlets ① on the meter. Do not move caps; the meter shaft at capped outlets has fillers, and no flutes for metering seed.

At extreme outside outlets on cart model ADC2350/E, orient jackscrew hose clamps so that screw hardware does not interfere with operation of meter box door handles.

Leave enough slack so that drill can be fully raised, lowered, folded and unfolded.

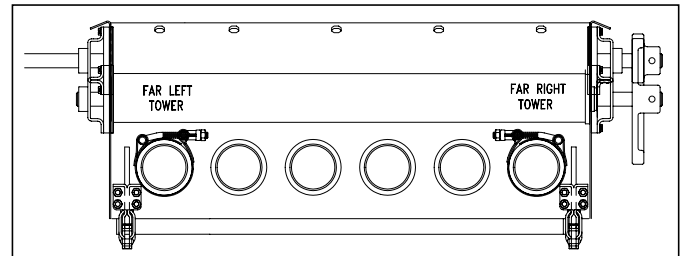


Figure 12
ADC2350/E Seed Hose Outlets

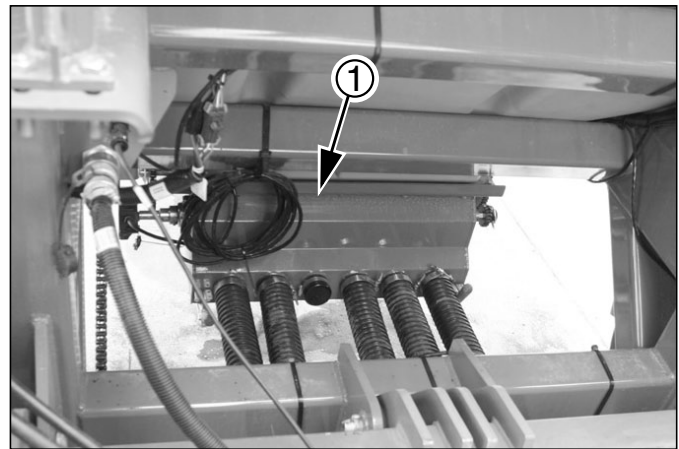


Figure 13
ADC2350/E Seed Hoses Connected

Make ADC2350/E Electrical Connections

The ADC2350/E cart has connections in front and back. The ADC2350B/BE has connections only in front.

ADC2350/E Front Electrical Connections**Refer to Figure 14**

Make sure tractor is shut down with accessory power off before making connections.

1. Mate the lighting plug ① to the outlet connector on the tractor. This connection is also passed through to the back of the cart for the trailing drill.
2. Mate the seed monitor plug ② to the outlet connector on the tractor. This connection is also passed through to the back of the cart.
3. Secure cables so they are clear of moving parts at the hitch.

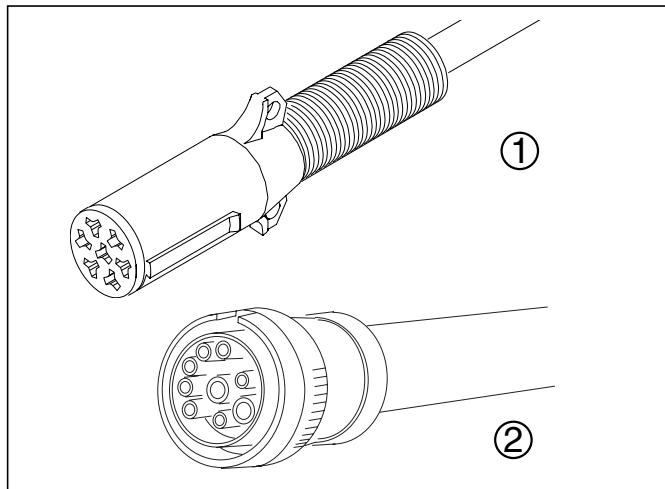


Figure 14
Cart Lighting & Monitor

26467
27080

ADC2350/E Rear Electrical Connections

Before making electric or hose connections between cart and trailing drill, first make the rear cart-drill mechanical hitch connection. Refer to the drill manual.

For a trailing implement,

- ① a lighting and
 - ② an implement lift switch connector are always present.
 - ③ A monitor connection may or may not also be present, depending on implement options.
- Consult the implement manual for drill-cart connections.

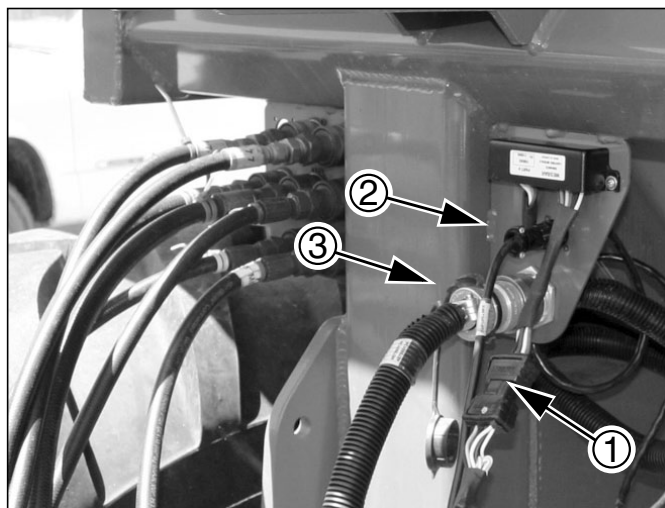


Figure 15
Implement Electrical Cables

26439

Make ADC2350/E Hydraulic Connections**⚠ WARNING****High Pressure Fluid Hazard:**

Only trained personnel should work on system hydraulics! Relieve pressure before disconnecting hydraulic lines. Escaping fluid under pressure can have sufficient pressure to penetrate the skin causing serious injury. Use a piece of paper or cardboard, NOT BODY PARTS, to check for leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, seek immediate medical attention from a physician familiar with this type of injury.

Current Style Color Coded Hose Handles

The air cart itself consumes hydraulic power for one or two circuits, and has a low pressure sump return line. When the cart leads the drill, the cart also passes through three circuits necessary for drill operations.

Refer to Figure 16

Great Plains hydraulic hoses have color coded handle grips to help you hookup hoses to your tractor outlets. Hoses that go to the same remote valve are marked with the same color.

To distinguish hoses on the same hydraulic circuit, refer to the symbol molded into the handle grip. Hoses with an extended-cylinder symbol feed cylinder base ends. Hoses with a retracted-cylinder symbol feed cylinder rod ends.

For hydraulic fan and drive motors, connect the hose under the retracted cylinder symbol to the pressure side of the motor. Connect the hose under the extended cylinder symbol to the return side of the motor.

The fan motor further requires hookup of a third line, which returns hydraulic fluid from the fan motor case.

Make sure all tractor levers are in neutral or float, or tractor hydraulics are off, before making connections.

Fan Priority

If your tractor has a priority circuit for hydraulic motors, connect the fan (Black) to this circuit.

ADC2350/E Hydraulic Hookup

The cart fan uses only the Extend/Base side of the Black circuit, but both sides (plus sump) are passed through to the trailing drill.

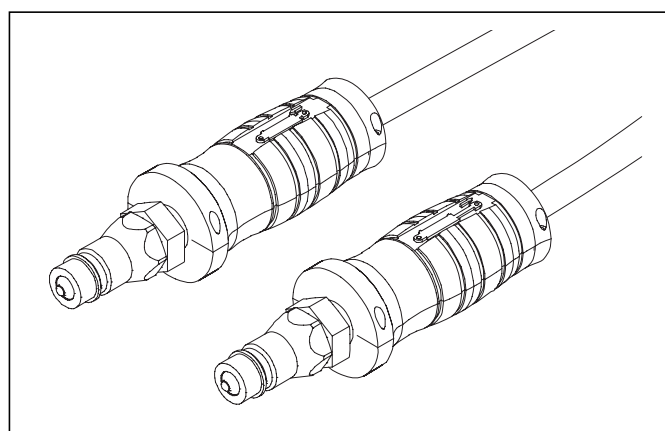


Figure 16
Color Coded Hose Grips

31733

NOTICE

For CTA implements, some tractors require an auxiliary flow kit to prevent damage to the hydraulic pump. Contact a factory trained service technician before hooking to cart and CTA implement.

Color	Hydraulic Function
<none> (decal)	SUMP return: Cart: Hydraulic Fan Drills: Down pressure or weight transfer
Black	Cart: Hydraulic Fan (Extend side only) Drill (NTA only): Fold Cylinders
Blue	Cart: <no function> Drills: Lift Cylinders
Green	Cart: Auger Drills: Marker Cylinders
<none>	Cart: Case Drain Drills: <no function>

ADC2350/E Older Style Hoses with Color Ties

⚠ WARNING

Only trained personnel should work on system hydraulics!

Great Plains hydraulic hoses are color coded to help you hookup hoses to your tractor or drill outlets. Hose connections are also passed through to a rear panel when the air cart leads the drill. Hoses that go to the same remote valve are marked with the same color tie.

Refer to Figure 17

To distinguish hoses on the same hydraulic circuit, refer to plastic hose label. The hose under an extended-cylinder symbol feeds a cylinder base end. The hose under a retracted-cylinder symbol feeds a cylinder rod end.

Make sure all tractor levers are in neutral or float, or tractor hydraulics are off, before making connections.

Fan Priority

If your tractor has a priority circuit for hydraulic motors, connect the fan (Yellow) to this circuit.

Sump First and Last

Seals in the hydraulic fan motor can be damaged if the return line is pressurized. Always connect the SUMP hose first and disconnect it last. The sump hose has a larger (1.06 inch) quick-connect coupling.

ADC2350/E Hydraulic Hookup

The cart fan uses only the Extend/Base side of the Yellow circuit, but both sides (plus sump) are passed through to the trailing drill.

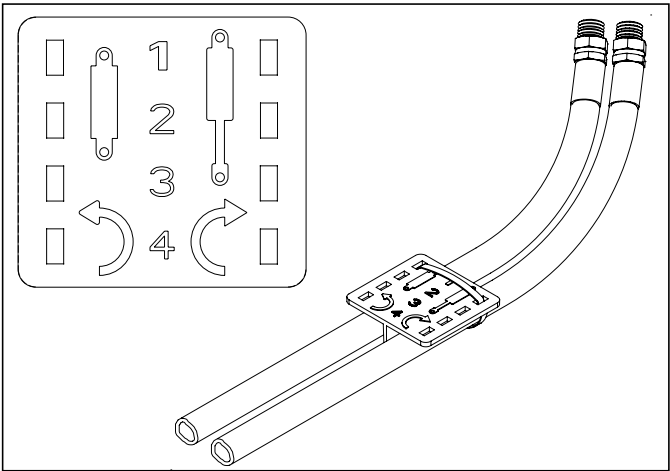


Figure 17
Plastic Hose Label

817-348c
17641

NOTICE

The hose & large connector labeled sump refers to high volume hydraulic motor return and should always be connected to the port on the tractor capable of handling high volume low pressure return oil. DO NOT connect this line to low volume case drain lines or low volume sump lines on the tractor. See tractor manufacturer’s recommendations for high volume hydraulic motor return.

Color	ADC2350/E Hydraulic Function
<none> (decal)	SUMP return: Cart: Hydraulic Fan Drills: Down pressure or weight transfer
Yellow	Cart: Hydraulic Fan (Extend side only) Drill (NTA only): Fold Cylinders
Blue	Cart: <no function> Drills: Lift Cylinders
Orange	Cart: Auger Drills: Marker Cylinders
<none>	Cart: Case Drain Drills: <no function>

Hitching ADC2350B/BE to Leading Drill

Hitching the ADC2350B/BE air cart to the drill is easiest if the cart's hoppers are empty of all seed and treatments. Shifting the tongue side to side is difficult if material is loaded, particularly in the forward hopper.

The ADC2350B/BE requires no leveling.

Once the cart is hitched to the drill, it may be left hitched indefinitely, although disconnection may be necessary for extensive backing operations.

CAUTION

Crush and Run-Away Hazards:

On completely level ground, it is possible to manually move an empty cart for hitching. This is unsafe if the ground is not level, or the cart is not empty. Leave any wheel chocks in place on uneven/unlevel ground, or if cart is not empty.

Refer to Figure 18

Position the cart so that after hitching, only forward movements are needed. Once connected to a drill and tractor, reverse steering is extremely difficult.

1. Hitch the drill to the tractor before hitching the cart to the drill.
2. Back the tractor and drill up to the cart, so that the drill drawbar is over the tongue strap ①.
3. Shut off the tractor and set the parking brake.
4. Raise the cart tongue, and position the pintle ring on the drill pintle hook and close clasp.
5. Attach the safety chain ② to an anchor loop on the drill hitch.

Make ADC2350B/BE Seed Hose Connections

ADC2350B/BE seed hose connections are made at the front of the cart, and are couplers. ADC2350/E seed hose connections are made at the back of the cart and are clamped.

ADC2350B/BE Seed Hose Connections

Refer to Figure 19

Connect the cart seed hose outlet bulkhead ① to the drill seed hose inlet bulkhead ②.

While making the connection, inspect the gasket ③ (on the cart side) between the two bulkheads and replace as needed. Secure with latches ④.

Note: On the ADC2350B/BE, the center primary hoses at the meter feed the outside towers, and the outside primary hoses at the meter feed the center towers.

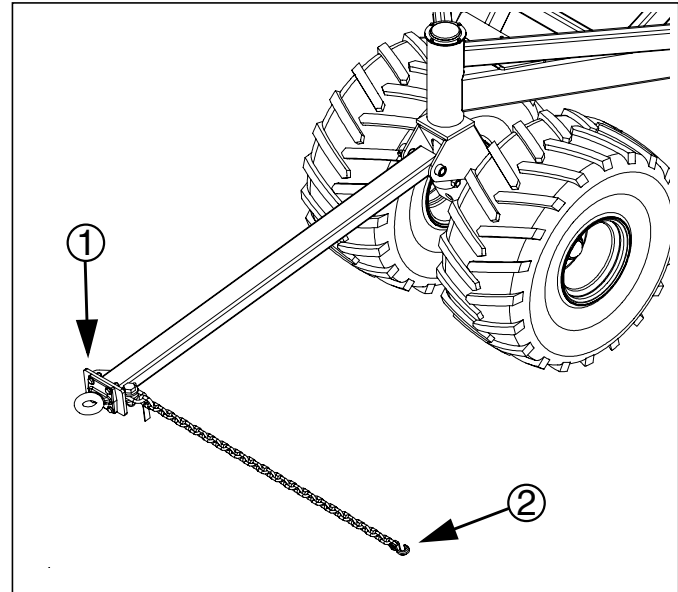


Figure 18
Hitch: Drill Leads Cart

27077

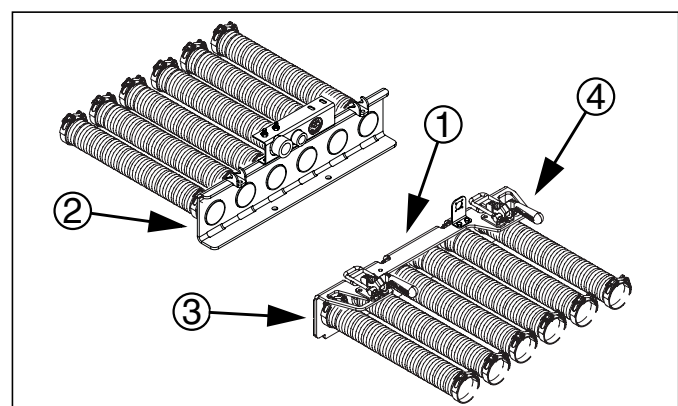


Figure 19
ADC2350B/BE Seed Hose Manifold

27082

Make ADC2350B/BE Electrical Connections

The ADC2350B/BE has connections only in front. The ADC2350/E cart has connections in front and back.

Refer to Figure 20

Make sure tractor is shut down with accessory power off before making connections. All connections are made at or above the seed hose bulkhead.

1. Mate the lighting plug ① to the leading implement outlet connector, which is tied to the seed hose bulkhead.
2. Mate the implement lift connector ② at the bulkhead.
3. Mate the seed monitor plug ③ to the receptacle at the bulkhead.
4. Secure cables so they are clear of moving parts at the hitch.

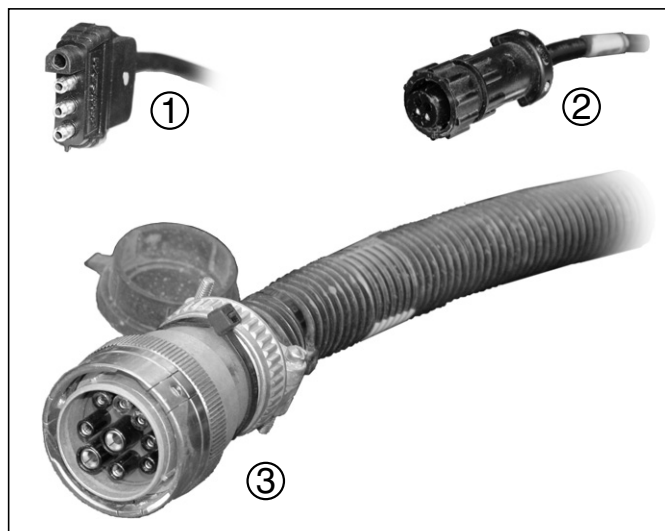


Figure 20 - ADC2350B/BE: Cart
Lighting, Lift Switch & Monitor

26144
27192
27193

Make ADC2350B/BE Hydraulic Connections

⚠ WARNING

Only trained personnel should work on system hydraulics!

Current Style Color Coded Hose Handles

The air cart itself consumes hydraulic power for one or two circuits, and has a low pressure sump return line. When the cart trails the drill (ADC2350B/BE), only a single shared auger/fan connection is necessary.

Great Plains hydraulic hoses have color coded handle grips to help you hookup hoses to your tractor or drill outlets. Hose connections are also passed through to a rear panel when the air cart leads the drill. Hoses that go to the same remote valve are marked with the same color.

Refer to Figure 21

To distinguish hoses on the same hydraulic circuit, refer to the symbol molded into the handle grip. Hoses with an extended-cylinder symbol feed cylinder base ends. Hoses with a retracted-cylinder symbol feed cylinder rod ends.

Make sure all tractor levers are in neutral or float, or tractor hydraulics are off, before making connections.

Fan Priority

If your tractor has a priority circuit for hydraulic motors, connect the fan (Black) to this circuit.

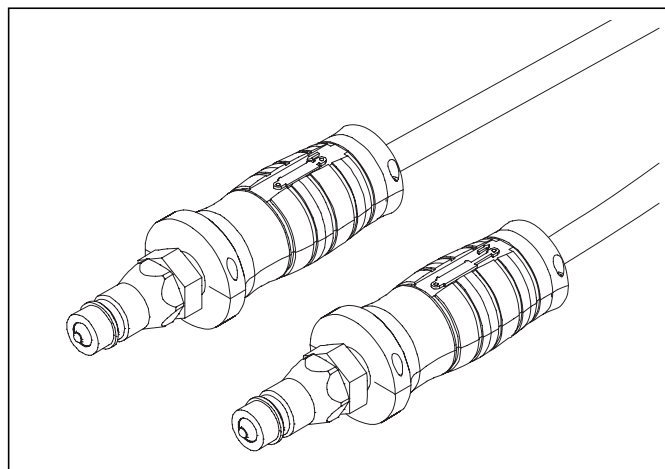


Figure 21
Color Coded Hose Grips

31733

Sump First and Last

Seals in the hydraulic fan motor can be damaged if the return line is pressurized. Always connect the SUMP hose first and disconnect it last. The sump hose has a larger (1.06 inch) quick-connect coupling.

ADC2350B/BE Hydraulic Hookup

The fan uses only the Extend side of this circuit, and the Sump line. Both connections are made at or above the seed hose bulkhead.

NOTICE

The hose & large connector labeled sump refers to high volume hydraulic motor return and should always be connected to the port on the tractor capable of handling high volume low pressure return oil. DO NOT connect this line to low volume case drain lines or low volume sump lines on the tractor. See tractor manufacturer's recommendations for high volume hydraulic motor return.

Size	ADC2350B/BE Hydraulic Function
large	SUMP return: Cart: Hydraulic Fan and Auger Drill: <no function>
small	Cart: Hydraulic Fan and Auger (Extend side only) Drill: <no function>
$\frac{1}{4}$ inch	Cart: Case Drain Drill: <no function>

Set Up the Implement

This manual only covers air cart setup. Consult the Operator's Manual for the implement for additional setup steps required prior to operation.

ADC2350B/BE Older Style Hoses With Color Ties

WARNING

Only trained personnel should work on system hydraulics!

Hoses that go to the same remote valve are marked with the same color tie.

Refer to Figure 22

To distinguish hoses on the same hydraulic circuit, refer to plastic hose label. The hose under an extended-cylinder symbol feeds a cylinder base end. The hose under a retracted-cylinder symbol feeds a cylinder rod end.

Make sure all tractor levers are in neutral or float, or tractor hydraulics are off, before making connections.

Fan Priority

If your tractor has a priority circuit for hydraulic motors, connect the fan (Yellow) to this circuit.

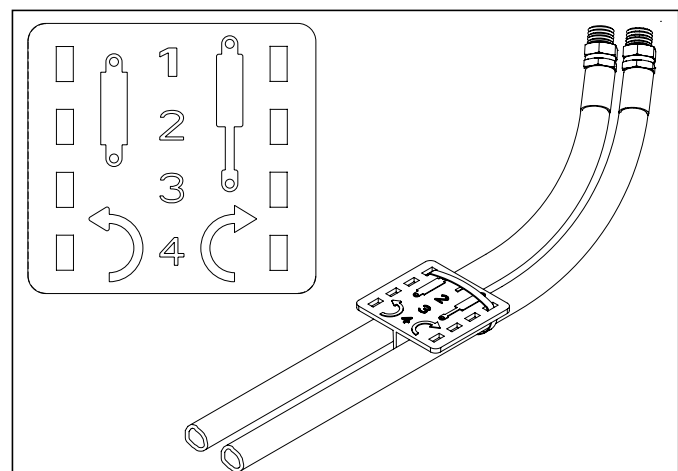


Figure 22
Plastic Hose Label

817-348c
17641

Setup Seed Monitor for Air Drill

With the monitor terminal installed (see page 18), the cart hitched and the implement hitched, the monitor can be set up with information that rarely changes (as well as with defaults for planting-specific information to be changed later).



See the DICKEY-john® Quick Start guide for more detailed instructions. This Operator's manual section provides only cross-references to information required



Note: Monitor setup menus are not enabled until all monitor harness connections are made



If the monitor inputs are correctly entered, the monitor is a handy tool to allow you to fine tune the variable rate gearbox setting.

Row Setup Data



Row Spacing and Swath

If "Auto Update Width" is set to "Disabled", a precise (swath averaged) row spacing is not needed.

CTA4000 Air Drill Implement

Model	CTA4000-8006	CTA4000-6575	CTA4000-5010
Row Count	80	65	50
Nominal Row Spacing	6 inches (15.2 cm)	7.5 inches (18.9 cm)	10 inches (24.8 cm)
Swath Averaged Row Spacing	6.08 inches (15.45 cm)	7.49 inches (19.0 cm)	9.75 inches (24.77 cm)
Swath [Width]	486.5 inches (1235.7 cm)	487.1 inches (1237.2 cm)	487.5 inches (1238.6 cm)
Number of Towers	5 (16 ports per tower)	5 (13 ports per tower)	5 (10 ports per tower)

CTA4000HD Air Drill Implement

Model	CTA4000HD-8006	CTA4000HD-6575	CTA4000HD-5010
Row Count	80	65	50
Nominal Row Spacing	6 inches (15.2 cm)	7.5 inches (18.9 cm)	10 inches (24.8 cm)
Swath Averaged Row Spacing	6.08 inches (15.45 cm)	7.49 inches (19.0 cm)	9.75 inches (24.77 cm)
Swath [Width]	486.5 inches (1235.7 cm)	487.1 inches (1237.2 cm)	487.5 inches (1238.6 cm)
Number of Towers	5 (16 ports per tower)	5 (13 ports per tower)	5 (10 ports per tower)

NTA3010 Air Drill Implement

Model	NTA3010-4875	NTA3010-3610
Row Count	48	36
Nominal Row Spacing	7.5 inches (19.1 cm)	10 inches (25.4 cm)
Swath Averaged Row Spacing	7.58 inches (19.3 cm)	10.1 inches (25.7 cm)
Swath [Width]	364.0 inches (924.6 cm)	364.0 inches (924.6 cm)
Number of Towers	4 (12 ports per tower)	4 (9 ports per tower)

NTA3510 Air Drill Implement

Model	NTA3510-5575	NTA3510-4010
Row Count	55	40
Nominal Row Spacing	7.5 inches (19.1 cm)	10 inches (25.4 cm)
Swath Averaged Row Spacing	7.57 inches (19.2 cm)	10.1 inches (25.7 cm)
Swath [Width]	416.5 inches (1057.9 cm)	404.0 inches (1026.2 cm)
Number of Towers	5 (11 ports per tower)	5 (8 ports per tower)

3N-4010HDA Air Drill Implement

Model	3N-4010HDA-6675	3N-4010HDA-4810
Row Count	66	48
Nominal Row Spacing	7.5 inches (19.1 cm)	10 inches (25.4 cm)
Swath Averaged Row Spacing	7.58 inches (19.3 cm)	10.1 inches (25.7 cm)
Swath [Width]	499.0 inches (1267 cm)	490.0 inches (1245 cm)
Number of Towers	6 (11 ports per tower)	6 (8 ports per tower)



Operating Instructions

This section covers general operating procedures. It assumes that setup items have been completed for both air cart and implement.

Experience, machine familiarity and the following information will lead to efficient operation and good working habits. Always operate farm machinery with safety in mind.

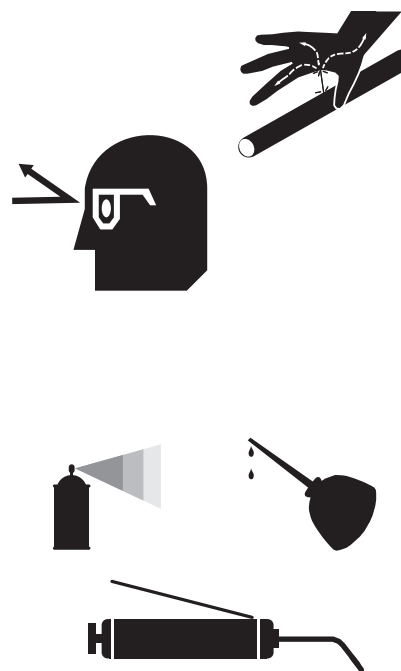
General Description

Seed metering is powered by a cart tire and driven at a rate proportional to distance traveled. Each seed bin is self-contained and has its own metering device. The seed bins are sealed and held at the same pressure as the meter boxes so metering is controlled mechanically—not by air-flow fluctuations. The metered seed is carried by air through the hoses to the distribution towers on the implement. These towers then divide the air and seed into individual rows.

The metering devices are driven through an electromagnetic clutch. The clutch only engages if the implement is lowered, operating an adjustable lift switch. Seed metering is shut off automatically when the drill is lifted for headland turns.

Pre-Start Checklist

- ☐ Lubricate the cart as indicated under Lubrication, “**Maintenance and Lubrication**” on page 74.
- ☐ Check the tires for proper inflation according to “**Tire Inflation Chart**” on page 87.
- ☐ Check the chains for proper tension and alignment as shown under Drive System Adjustments, “**Adjustments**” on page 56.
- ☐ Check for worn or damaged parts and repair or replace before going to the field.
- ☐ Check all nuts, bolts and screws. Tighten bolts as specified on “**Torque Values Chart**” on page 88
- ☐ Check height switch on implement.



Walkboard Ladders

The walkboard between the hoppers is served by two ladders, one on each side of the cart. When the auger is latched in the storage position, it obstructs use of the ladder on the right side.

The ladder on the right side is also removable, to allow auger access under the rear meter box.

Ladder Operation

Refer to Figure 23

Both ladders have swing-down lower sections. These need to be raised for transport and planting.

To stow a lower ladder section, swing it up until a spring-loaded pin ① engages a cutout in the right side of the step frame. Make sure the pin engages, or the ladder may swing down during cart movement.

To lower the ladder section, pull the pin out and swing the section down.

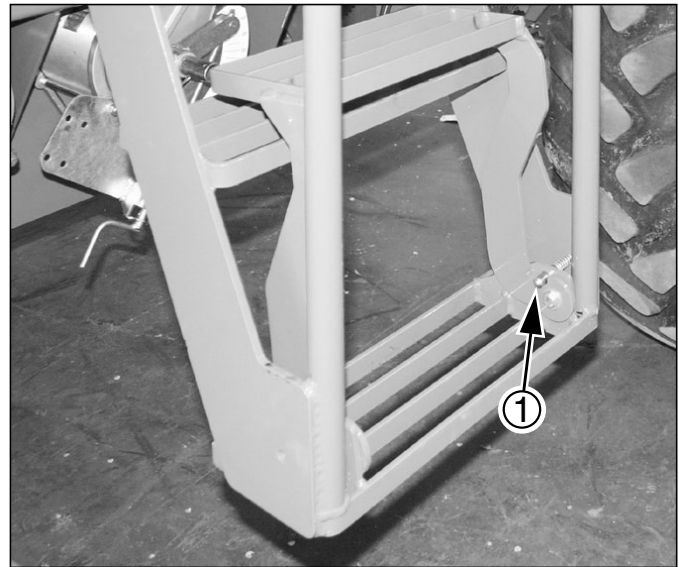


Figure 23
Lower Ladder Section

26342

Removing the Right Ladder

Refer to Figure 24

If unloading the rear hopper, the lower section of the right side walkboard ladder must be removed for auger access to the rear meter.

Note: This ladder section is easier to handle if the bottom step is swung up and pinned first.

5. Latch open the pins ② that secure the lower ladder section to the cart frame.
6. Swing the ladder out and lift the hooks ③ off the outer rung of the step at the cart frame. Set the ladder down clear of the operating area.

To re-install the right ladder:

1. Release the pin lever arms.
2. Place the hooks over the outer rung of the step at the cart frame.
3. Swing the ladder onto the cart until the pins re-seat.

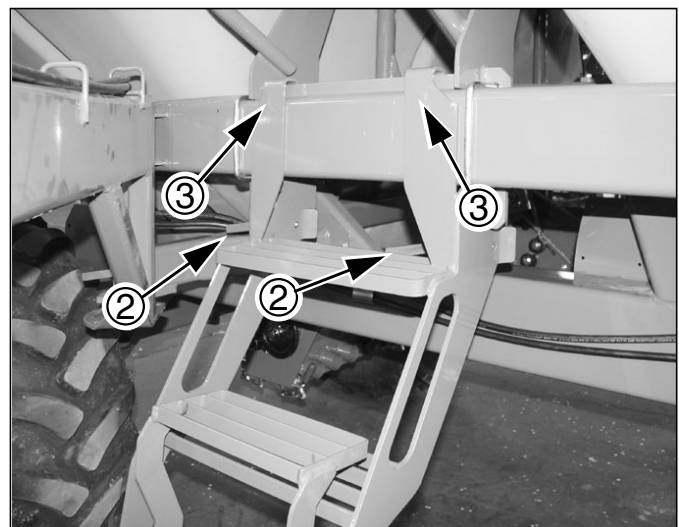


Figure 24
Remove Lower Ladder

26330

Hopper Lids

Keep lids closed. Keep tightly closed for operations. Keep loosely closed for storage. Open only for material loading, hopper clean-out and exceptional maintenance.

Lid Opening

Refer to Figure 25

1. Lift handle ①.

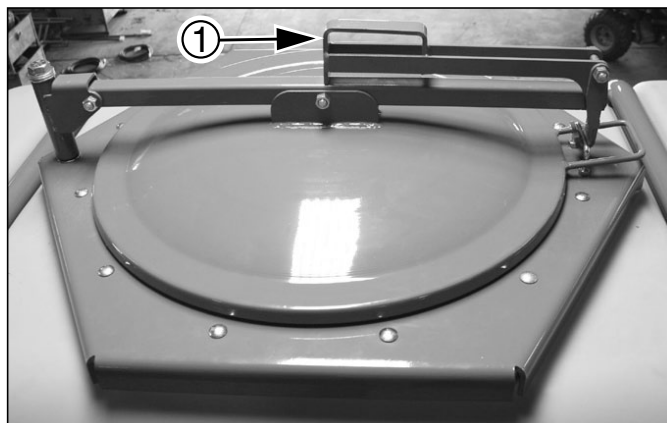


Figure 25
Hopper Lid Latched

26344

Refer to Figure 26 and Figure 27

2. Swing handle ① out until hook ② releases from U-bolt.
3. Move hook ② clear of U-bolt and re-close handle.

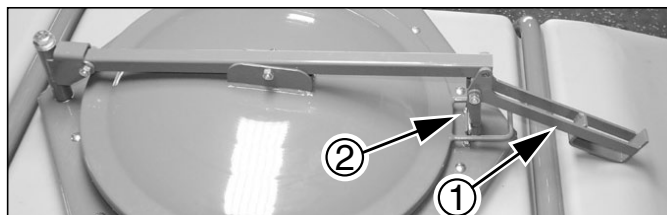


Figure 26
Hopper Lid Unlatched

26345

Refer to Figure 27

4. Lift lid slightly at pivot end to clear strainer (shown on next page).
5. Swing lid away from walkboard. Open only enough to accomplish the present task.

Lid Closing

Refer to Figure 27, Figure 26 and Figure 25

1. Swing lid over opening until capture hook ② is centered on U-bolt ③.
2. Open handle ① and engage hook ② on U-bolt ③.
3. Close handle ① for operations or short-term parking. For long-term storage, do not engage hook or latch handle, to avoid deforming the seal.
4. For storage, particularly unlatched, a padlock through both U-bolts deters unauthorized entry by persons unaware of possible confined space risks, and prevents entry of pests, debris and precipitation.

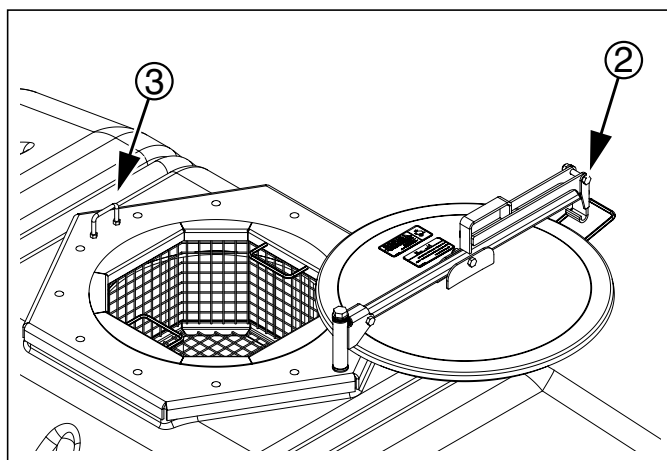


Figure 27
Hopper Lid Opening

26343

Strainer

Each hopper is equipped with a strainer intended to:

- capture large foreign matter in seed and materials,
- prevent entry by animals if lid left open, and;
- discourage hopper entry by children.

Leave the strainer in place except during strainer and hopper cleaning.

Check the strainer for residue prior to each loading operation. Remove, empty and return it to the hopper.

For strainer or hopper cleaning, the strainer lifts out when the lid is fully open.

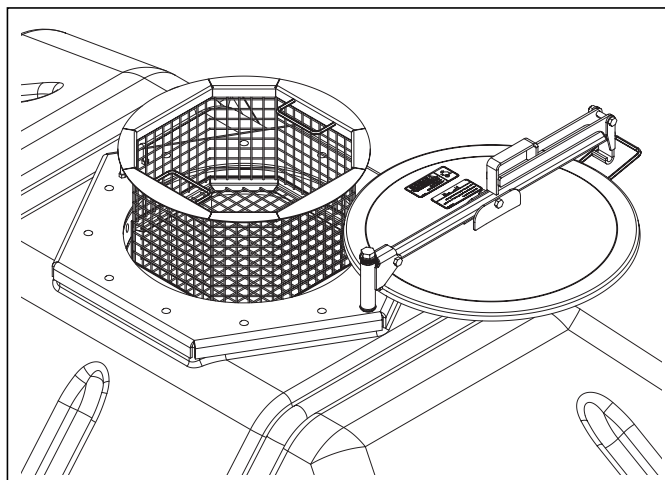


Figure 28
Hopper Strainer

26405

Meter Doors

Refer to Figure 29 and Figure 30

Each meter box has two distinct access doors on the bottom:

- ① Front: Clean-Out
(for emptying hopper)
- ② Rear: Calibration
(for meter sampling and meter clean-out)

The doors are closed during transport, loading and planting. They may be open slightly in storage if the hopper was not completely dry at clean-out.

The doors need to close and seal tightly during planting. Periodically inspect the lever clamps ③ for proper tension, and inspect the elastomer seals for integrity and resiliency.

Meter Door Opening

NOTICE

Material Loss Risk:

Do not open the (forward) clean-out door until preparations have been made to capture any material to be re-used. Any material present will flow immediately, possibly in large volume, as soon as the door is open.

1. Pull out on a clamp handle ③ just until it is loose.
2. Pull out on the other clamp handle. The door normally will swing down on its own. If not, pull it open by hand.

Meter Door Closing

Make sure the clamp handles are out or down (not up), or it will not be possible to close the door.

1. Use a clean rag to wipe any residual material from the face of the elastomer seals on the door, and from the bottom face of the meter box.
2. Swing the door up into closed position.
3. While holding the door closed, swing one clamp handle up, past vertical.
4. Swing the other clamp handle up past vertical.
5. Inspect the door closure for possible air leaks. Replace any deformed elastomer seal or damaged latch clamp.

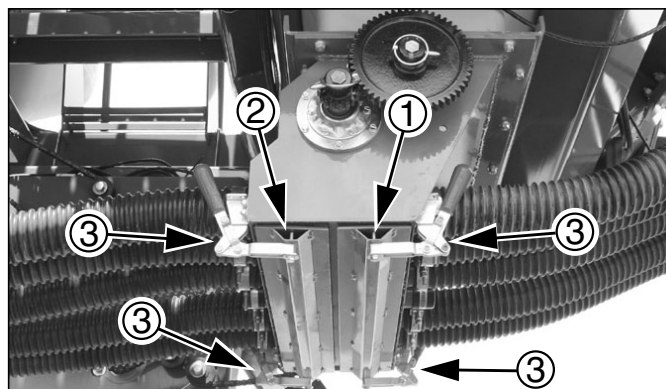


Figure 29
Meter Doors Closed

26346

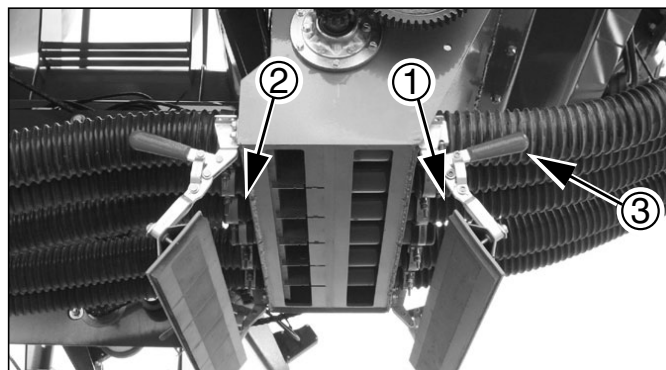


Figure 30
Meter Doors Open

26341

Meter Hand Crank

A hand crank is provided on the left side of the cart for manual operation of the meters (the meters otherwise turn only when the cart is in motion with the clutch engaged).

NOTICE

Equipment Damage Risk:

Rotate the hand crank only in the counter-clockwise direction, as shown in Figure 32. Operating in reverse (clockwise) can cause meter gear box damage.

The crank is used for two common tasks:

- calibration of the meter setting for planting, and
- clean-out of the meter flute chamber.

Installing Crank

Refer to Figure 31 and Figure 32

6. Remove the pin ① from the crank shaft behind the outer crank bracket.
7. Pull the crank ② out of the inside bracket ③ (only) and slide the end of the crank shaft onto the outside end of the meter jackshaft ④. Re-insert the pin in the crank shaft so it doesn't get lost.

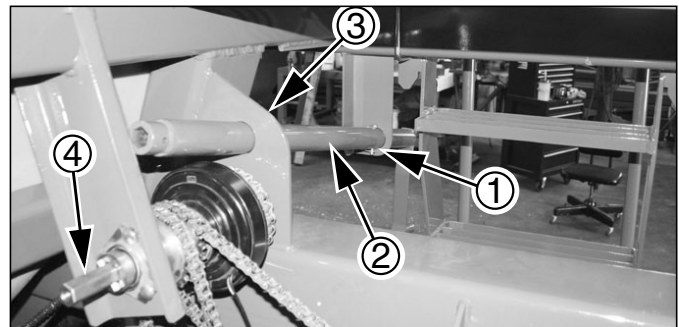


Figure 31
Hand Crank Storage

26333

Operating the Hand Crank

Refer to Figure 32

Turn the hand crank counter-clockwise to simulate meter operation during planting.

Specific recommendations may be made in applicable manual sections. See:

see **“Meter Calibration”** in the Seed Rate manual,
see **“Unloading the Cart”** on page 47, and
see **“Storage”** on page 55.

In general, you may operate the crank as fast as is comfortable. For reference, at a field speed of 6 mph, the jackshaft rotates at 150 rpm (2.5 turns per second).

For clean-out, make sure the variable rate gearboxes ⑤ are set:

- above “10” if the final drive range gears are in High Range mode, or
- above “80” if the final drive range gears are in Low Range mode.

To change variable rate gearbox and final drive range gearing see **“Setting Material Rates”** on page 56.

Note: If variable rate gearbox is set to “0”, operating the hand crank may fail to clear the meters of seed.

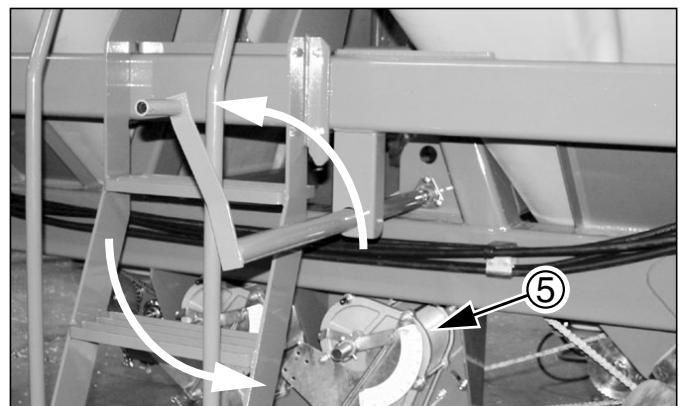


Figure 32
Hand Cranking Direction

26333

Drive Chain Lockout

Refer to Figure 33, which depicts the primary drive sprocket locked out.

To minimize wear during transport, the chain drive system up to the clutch can be locked out at the driving wheel hub.

Locking Out for Transport

1. Locate the lockout pin receiver ① on the primary 60T sprocket weldment ② at the wheel hub. Depending on where rotation stopped at the last cart movement, the receiver may be hidden behind the axle bolt plate ③. Lockout tasks may be performed with the receiver exposed or hidden.

When engaged for chain drive operations, a spring-loaded pin plunger in the receiver occupies a hole in the lockout hub plate (not visible) behind the sprocket, so that both turn together. The cross-pin ④ in the plunger is in the deeper of the two detent positions in the receiver.

2. Pull the cross-pin ④ toward machine center, rotate it 90 degrees (one quarter turn), and position it in the shallow receiver detents, as shown in Figure 33.

Disengaging Lockout

Refer to Figure 33, which depicts the primary drive sprocket locked out.

Pull the cross-pin ④ toward machine center, rotate it 90 degrees (one quarter turn), and position it in the deeper receiver detents.

Unless the mating hole in the lockout hub plate just happens to be under the pin receiver (not likely), the pin will not move all the way into the detent; however, the pin will engage the hole automatically at next cart movement.

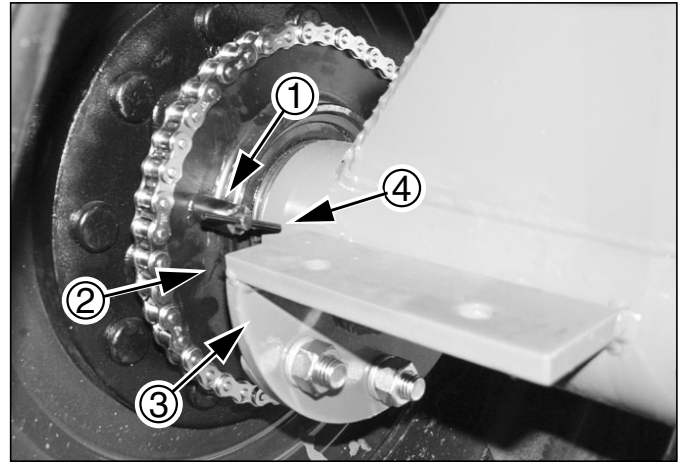


Figure 33
Drive Chain Lockout

263xx

Auger Operations

⚠ DANGER

Electrocution Hazard:

Keep clear of overhead power lines when positioning auger. The auger can reach 15 feet (4.6m) above ground level during positioning operations. If it contacts a power line, nearly all metal parts of the cart, tractor and drill will have lethal voltage present, and anyone touching them can complete the circuit to ground, resulting in serious injury or death. With very high voltages, electrocution can occur without direct contact.

This section covers only basic auger operations. For specific tasks, see:

“**Unloading the Cart**” on page 47, and
“**Loading Material**” on page 44.

Latch the auger into its cradles and pin the arm pivots, whenever the auger is not in use.

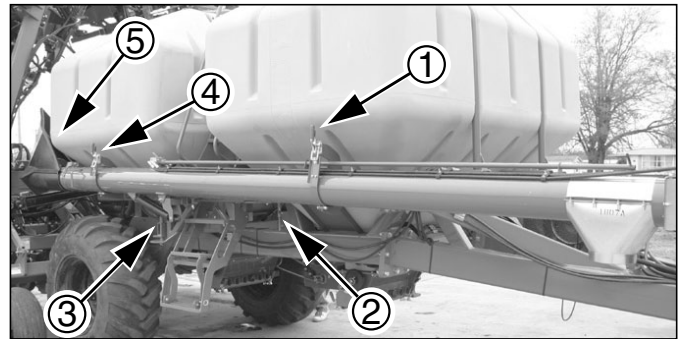
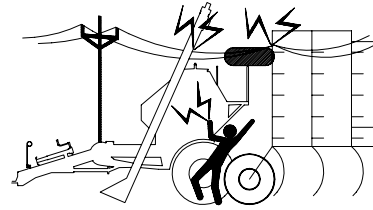


Figure 34
Auger Latched for Movement

26329

NOTICE

To avoid auger damage during cart movement, do not rely solely on the arm pins to secure the auger in the stored configuration. Use the latches.

Deploying Auger

The back (inlet) end of the auger has grasp handles. When empty of material this end of the auger also tends to be heavier. Start unlatching at the front end.

Refer to Figure 35

1. Squeeze the lock lever ⑦. Pull out on the front clamp latch ① and free the strap from the U-bolt. Raise the U-bolt ⑧, then the latch handle, so the auger tube will clear it.

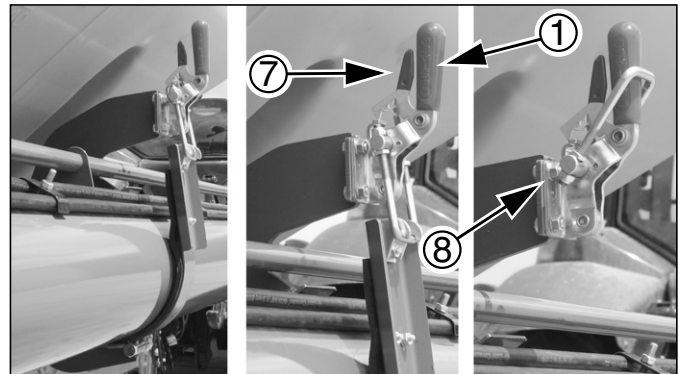


Figure 35
Auger Closed, Unlocked, Clear

26350

Refer to Figure 34 and Figure 36

2. Use the pin levers to withdraw both arm pins ②, ③ and hold them in the withdrawn configuration.

Refer to Figure 34

3. Hold a grasp handle near the auger inlet hopper.
4. Release and clear rear clamp latch ④ and strap.
5. Pull the auger away from the cart and set the inlet end on the ground.

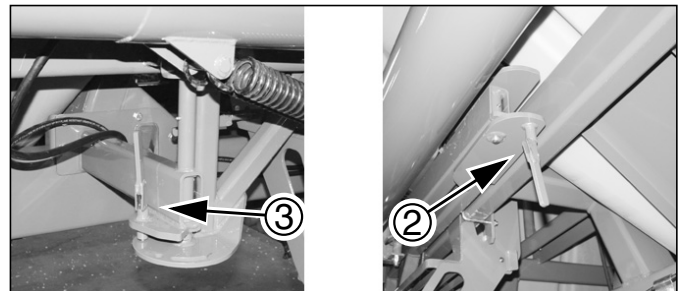


Figure 36
Auger Swing Arm Pins

26348

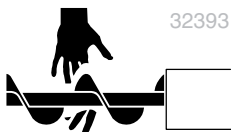
Auger Hydraulic Controls

Operating the auger involves one or two valves on the cart, and the tractor lever for the hydraulic circuit.

⚠ DANGER

Rotating auger.

To prevent serious injury or death:



▲ Read instructions and safety information before operation.

▲ Keep hands, feet, hair and clothing away from rotating auger.

▲ Do not remove or modify any guards.

▲ Keep children well clear of work area.

Diverter Valve

Refer to Figure 37

This valve is located at the front right corner of the front bulk hopper. It selects between auger and markers (ADC2350/E cart) or auger and fan (ADC2350B/BE cart).

⚠ CAUTION

Do not operate the diverter valve with the hydraulic circuit energized. Unexpected auger, fan or drill movements can result.

Do not use this valve as the Start-Stop control for the auger.

Operate the valve with the tractor hydraulic circuit off, or set to neutral or float. The handle has two positions.

Auger Diverter Valve Positions

- Ⓕ Handle Forward: Auger (make sure Auger control is in center-off position before moving handle to Ⓕ).
- Ⓑ Handle Back: Marker-enable or fan-enable (make sure circuit is off before moving handle to Ⓑ).

Auger Direction Valve

Refer to Figure 39

A valve ① toward the inlet end of the auger tube controls the direction of auger helicoid screw rotation. This valve is "center off".

To allow flow control by an operator at the outlet end, the control handle for the valve has an extension and second handle ②.

Use this valve as the Start-Stop and Forward-Reverse control for the auger. Set the valve to center-Off when not moving material at the moment.

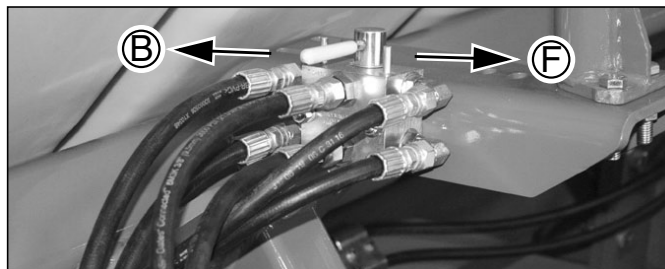


Figure 37
ADC2350/E Auger Diverter Valve

26332

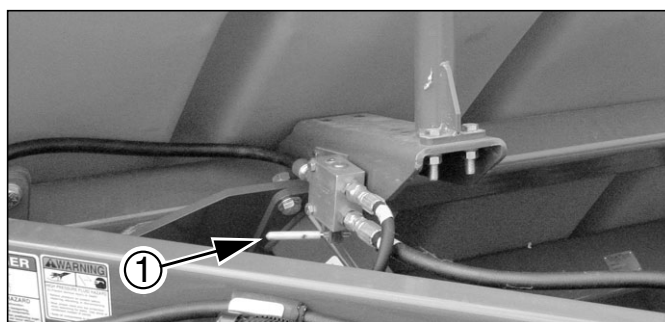


Figure 38
ADC2350B/BE Diverter Valve

29127

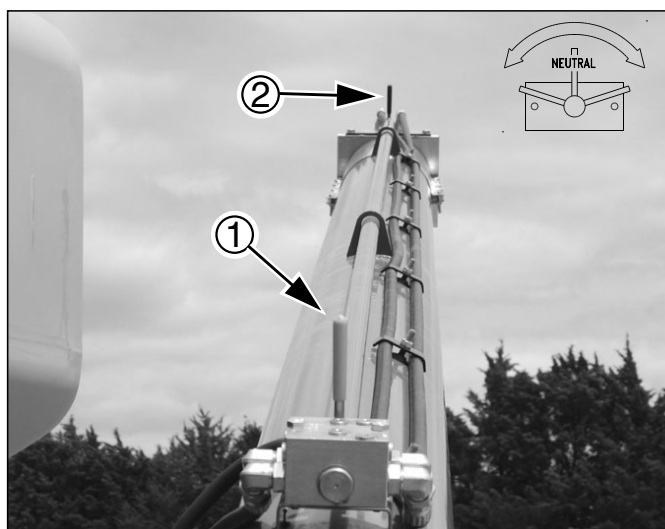


Figure 39
Auger Direction Valve

26404

Storing Auger

Refer to Figure 40 and Figure 41

The auger will not fully seat in the rear cradle unless the auger inlet hopper is in one of two positions ①, ②. Each position is shown in the figures.

1. Orient hopper.

If storing for transport, orient the inlet hopper up and toward cart center ①, as shown in Figure 40. This protects the auger from damage from movement of the trailing implement on uneven terrain, and minimizes collection of debris thrown by the tire.

If securing the auger for cart storage, orient the inlet hopper out and down ②, as shown in Figure 41. This minimizes collection of airborne debris and precipitation. See also “Storage” on page 55.

2. Set arm levers ③, ④ to lock arm pins open.
3. Fold arm with center pivot forward.
4. Push auger to cradles.

Refer to Figure 42

which depicts pin configurations with arm in storage position. Arm lengths have been foreshortened for clarity.

5. Release arm pins, so that they will seat automatically when arm is in final storage position.
6. Seat auger in cradles, and secure straps ⑤, ⑥.

Auger Swing Arm

The auger arm may be completely unfolded to straight out, or folded, with the middle pivot pointing to cart front or back, as needed, to meet your loading or unloading requirements.

The arms pins may be used during unfolding and positioning to hold one arm in place while the other is being moved. This is useful for single-person operations.

In specific working configurations, you can engage the pins in slots or holes, to constrain the range of movement of the arm, or prevent movement altogether.

NOTICE

Equipment Damage Risk:

Be aware of the location of the outlet end of the auger during positioning. In addition to overhead line hazards, if a trailing implement is folded, the auger can strike it during positioning, with possible damage to the auger or implement.

See arm positioning illustrations at specific task topics: “Unloading the Cart” on page 47, and “Loading Material” on page 44.

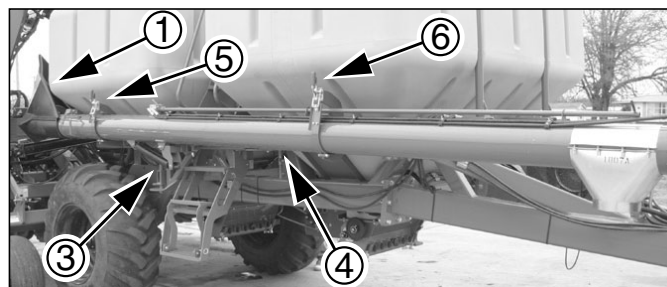


Figure 40
Auger Latched for Movement

26329

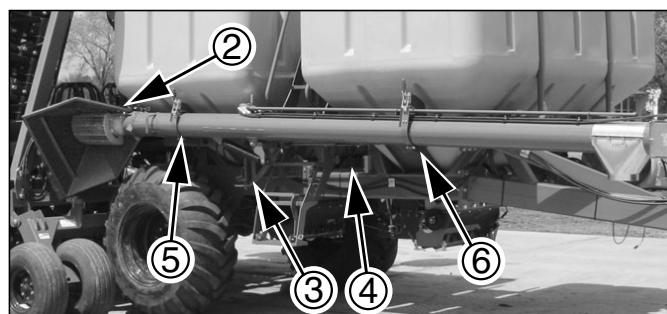


Figure 41
Auger Latched for Storage

26349

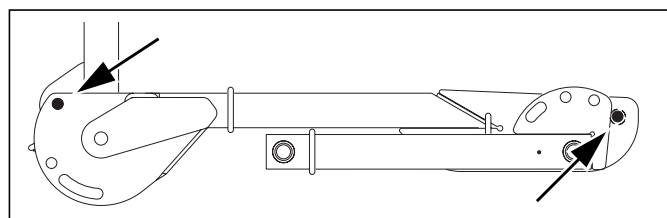


Figure 42
Pins when Arm is Stored

26358

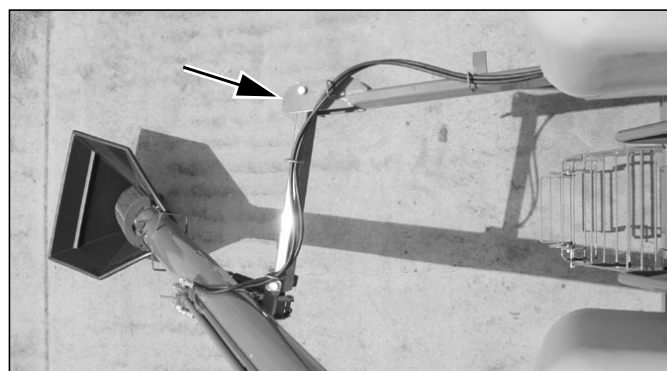


Figure 43
Auger Swing Arm

26359

Transport

⚠ DANGER

Electrocution Hazard:

To prevent serious injury or death from electric shock, keep clear of overhead power lines when transporting, folding, unfolding or operating all air drill components. Machine is not grounded. At higher voltages, electrocution can occur without direct contact.

Great Plains recommends transporting the air cart without seed loaded. Although designed for highway movement with full hoppers, the additional weight of seed may cause the implement assembly to exceed the rated ability of the tractor, makes the assembly more difficult to control and stop, and increases wear on cart tires and wheel bearings.

⚠ WARNING

Towing the drill at high speeds or with a vehicle that is not heavy enough can lead to loss of vehicle control. Loss of vehicle control can lead to serious road accidents, injury and death. To reduce the hazard:

- Do not exceed 20 mph (32 km/h).
- Do not tow an assembly that, when fully loaded, weighs more than 1.5 times the weight of the towing vehicle.

In the following tables, the tractor must weight at least $\frac{2}{3}$ (67%) of the weights shown.

The tractor must also be rated for towing and braking the total load shown.

Minimum Towing Vehicle

Refer to the tables below, or compute the weight of your configuration from the "Specifications and Capacities" information in each manual, plus any material data.

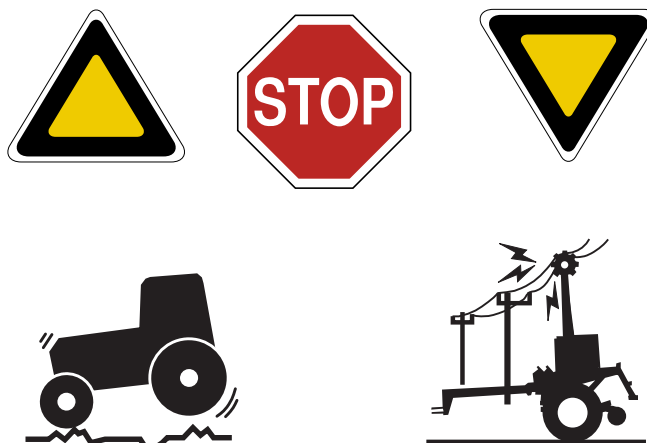


Figure 44
Review Transport Checklist

26360

Note: A loaded seed cart can easily cause the total assembly weight to exceed 1.5 times the weight of a fully ballasted tractor. Great Plains recommends transport with the cart empty.

Assembly Weight for ADC2350/E Air Cart Plus CTA4000^a

CTA4000	No Extra Weights			One Weight Kit			Two Weight Kits		
Model	-8006	-6575	-5010	-8006	-6575	-5010	-8006	-6575	-5010
ADC2350/E Empty	21773 lbs 9876 kg	20700 lbs 9389 kg	19748 lbs 8958 kg	23173 lbs 10511 kg	22100 lbs 10024 kg	21148 lbs 9593 kg	24573 lbs 11146 kg	23500 lbs 10659 kg	22548 lbs 10228 kg
ADC2350/E Full	44173 lbs 20037 kg	43100 lbs 19550 kg	42148 lbs 19118 kg	45573 lbs 20672 kg	44500 lbs 20185 kg	43548 lbs 19753 kg	46973 lbs 21307 kg	45900 lbs 20820 kg	44948 lbs 20388 kg

a. Data does not include markers.

Assembly Weight for ADC2350/E Air Cart Plus CTA4000HD^a

CTA4000HD Model	-8006 (6in)	-6576 (7.5in)	-5010 (10in)
ADC2350/E Empty	28653 lbs (12997 kg)	27340 lbs (12401 kg)	26148 lbs (11861 kg)
ADC2350/E Full	51053 lbs (23157 kg)	49740 lbs (22562 kg)	48548 lbs (22021 kg)

a. Data includes standard (four) weight kits, but does not include markers.

Assembly Weight for ADC2350/E Air Cart Plus NTA3010^a

CTA3010	-3610 (10in)		-4875 (7.5in)	
Rows	ADC2350B/BE Empty	ADC2350B/BE Full	ADC2350B/BE Empty	ADC2350B/BE Full
No Weight Kits	23800 lbs (10795 kg)	46200 lbs (20956 kg)	25750 lbs (11680 kg)	48150 lbs (21840 kg)
1 Weight Kit	25200 lbs (11431 kg)	47600 lbs (21591 kg)	27150 lbs (12315 kg)	49550 lbs (22476 kg)
2 Weight Kits	26600 lbs (12066 kg)	49000 lbs (22226 kg)	28550 lbs (12950 kg)	50950 lbs (23111 kg)
3 Weight Kits	28000 lbs (12701 kg)	50400 lbs (22861 kg)	29950 lbs (13585 kg)	52350 lbs (23746 kg)
4 Weight Kits	29400 lbs (13336 kg)	51800 lbs (23496 kg)	31350 lbs (14220 kg)	53750 lbs (24381 kg)

a. Data does not include markers.

Assembly Weight for ADC2350/E Air Cart Plus NTA3510^a

CTA3510	-4010 (10in)		-5575 (7.5in)	
Rows	ADC2350B/BE Empty	ADC2350B/BE Full	ADC2350B/BE Empty	ADC2350B/BE Full
No Weight Kits	24600 lbs (11158 kg)	47000 lbs (21319 kg)	26900 lbs (12202 kg)	49300 lbs (22362 kg)
1 Weight Kit	26000 lbs (11793 kg)	48400 lbs (21954 kg)	28300 lbs (12837 kg)	50700 lbs (22997 kg)
2 Weight Kits	27400 lbs (12428 kg)	49800 lbs (22589 kg)	29700 lbs (13472 kg)	52100 lbs (23632 kg)
3 Weight Kits	28800 lbs (13063 kg)	51200 lbs (23224 kg)	31100 lbs (14107 kg)	53500 lbs (24267 kg)
4 Weight Kits	30200 lbs (13698 kg)	52600 lbs (23859 kg)	32500 lbs (14742 kg)	54900 lbs (24902 kg)

a. Data does not include markers.

Assembly Weight for ADC2350B/BE Air Cart Plus 3N-4010HDA

3N-4010HDA	-4810 (10in)		-6675 (7.5in)	
Cart	ADC2350B/BE Empty	ADC2350B/BE Full	ADC2350B/BE Empty	ADC2350B/BE Full
Standard Drill & Cart	30984 lbs (14054 kg)	53384 lbs (24215 kg)	31098 lbs (14106 kg)	53498 lbs (24266 kg)
1 Weight Kit ^a & Cart	32105 lbs (14563 kg)	54505 lbs (24723 kg)	32219 lbs (14614 kg)	54619 lbs (24775 kg)
Dual Markers & Cart	32844 lbs (14898 kg)	55244 lbs (25058 kg)	32958 lbs (14949 kg)	55358 lbs (25110 kg)
2 Weight Kits & Cart	33227 lbs (15071 kg)	55627 lbs (25232 kg)	33341 lbs (15123 kg)	55741 lbs (25284 kg)
Markers, 1 Kit & Cart	33965 lbs (15406 kg)	56365 lbs (25567 kg)	34079 lbs (15458 kg)	56479 lbs (25618 kg)
3 Weight Kits & Cart	34348 lbs (15580 kg)	56748 lbs (25741 kg)	34462 lbs (15632 kg)	56862 lbs (25792 kg)
Markers, 2 Kits & Cart	35086 lbs (15915 kg)	57486 lbs (26075 kg)	35200 lbs (15967 kg)	57600 lbs (26127 kg)
Markers, 3 Kits & Cart	36208 lbs (16424 kg)	58608 lbs (26584 kg)	36322 lbs (16475 kg)	58722 lbs (26636 kg)

a. Each weight kit assumed to be populated with ten 100-pound weights (5 weights each bracket).

Pre-Transport Checklist

Before transporting the cart, check and observe the following items.

- ☐ **Make sure the weight of the tractor equals or exceeds the value specified for your air drill assembly in the tables above or calculated from specifications.** Be sure to include hopper contents if materials are pre-loaded, and markers. If weights are added to the tractor or drill, or to reach the tractor-weight figure, make sure the total assembly weight is still within the rated capacity of the tractor.
- ☐ **Lockout Drive Chain.**
If the cart will be transported more than 15 miles, lock out drive chain to avoid wear.
See **“Drive Chain Lockout”** on page 37.
- ☐ **Auger Latches**
Properly latch auger to cart and rear storage arm before transporting.
See **“Storing Auger”** on page 40.
- ☐ **Hopper Lids**
Closed and secured.
See **“Lid Closing”** on page 33.
- ☐ **Walkboard Ladder**
Right side ladder mounted and pinned. Both ladder lower sections raised and pinned.
See **“Walkboard Ladders”** on page 32.
- ☐ **Transport Locks**
Check that all implement transport locks are securely in place.
- ☐ **Tires**
Check that all tires are properly inflated as listed on **“Tire Inflation Chart”** on page 87.
- ☐ **Bystanders**
Check that no one is in the way before moving. Do not allow any one to ride on the cart or implement.
- ☐ **Warning Lights**
Always use tractor, cart and implement warning lights when transporting the air drill.
- ☐ **Clearance**
Know the maximum dimensions of the cart and implement in transport position and follow a route that provides adequate clearance from all obstructions, including overhead lines.
See **“Specifications and Capacities”** on page 87.
- ☐ **Stopping Distance**
Allow sufficient stopping distance and reduce speed prior to any turns or maneuvers. If the cart is transported full, allow extra stopping distance.
- ☐ **Road Rules**
Comply with all national, regional and local laws when transporting on public roads.
- ☐ **Watch Traffic**
The bins obstruct a portion of your rear view. Be prepared for sudden maneuvers from following vehicles.

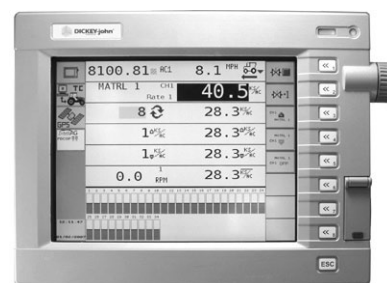
Monitor Material Configuration

The DICKEY-john® IntelliAg® monitor reads meter shaft speeds and can report pounds-per-acre (or kg/ha) planted. With the optional Variable Rate Kit, the monitor can control material rates.

In order to report accurately, the monitor requires several inputs. Inputs that rarely change were entered during cart setup (see **“Setup Seed Monitor for Air Drill”** on page 29). Inputs specific to particular materials (seed or fertilizer) need to be entered when those materials are first used, and when changed.



See the DICKEY-john® Quick Start guide for detailed instructions. Consult the DICKEY-john® Operator's Manual for how to configure reporting and alerts.



25421

Loading Material

⚠ DANGER

Entrapment and suffocation hazard:

Never enter a hopper for loading or unloading.

Once used for hazardous fertilizer or treated seed, dangerous concentrations of fumes may be present even in an empty hopper with the lid open.

Even with small amounts of otherwise harmless material loaded, the atmosphere inside the hopper may have insufficient oxygen or high levels of choking dust.

1. Securely hitch cart or drill+cart to a tractor with adequate weight and power. Park cart on solid, level ground. See Tractor Requirements, “**Specifications and Capacities**” on page 87.

Note: Static tongue weight of a loaded cart is about 9,500 pounds on level ground and more when facing downhill.

Refer to Figure 45

2. At each hopper to be loaded, if meter box clean-out door was completely closed, open it. See “**Meter Doors**” on page 35. If the cart has been parked for more than a day, condensation may have caused moisture to accumulate.
3. Wipe seals and meter bottom flanges clean. Close and latch clean-out doors.

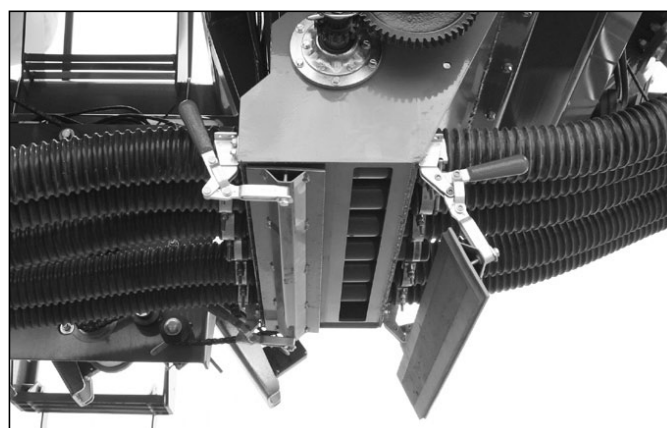
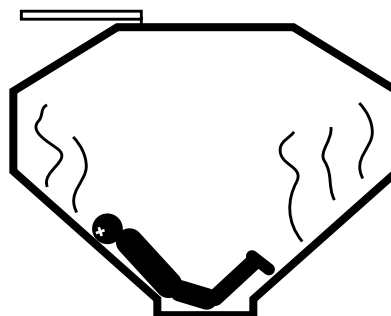


Figure 45
Hopper Unloading Door

26340

NOTICE

Population Risk:

Before filling the cart for the first time, and at the beginning of each season, check the entire bin for leaks. A small air leak can cause large variations in seeding rates.

4. With the cart fan running, check hopper-lid and meter-box seals carefully for air leaks. Adjust bin latch or replace seals to prevent leakage.
5. Shut off all hydraulic power to the cart.

Refer to Figure 46

6. Set the Auger Direction Valve control handle to center, off position.

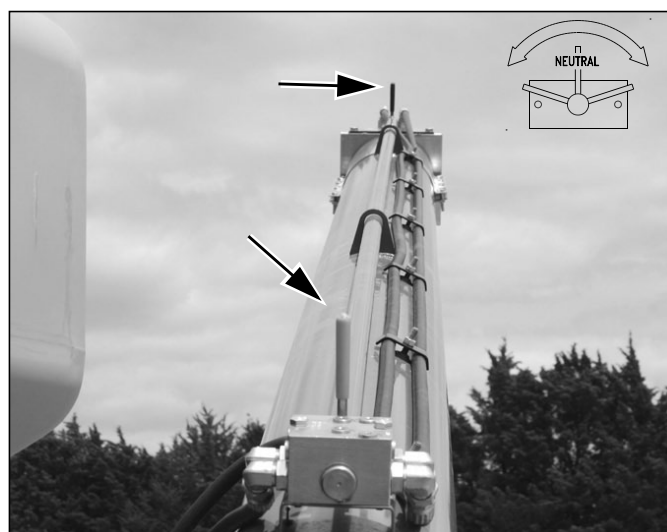


Figure 46
Auger Direction Valve Off

26404

Cart Diverter Valve

Refer to Figure 47 or Figure 48

7. Set the cart diverter valve ① to the forward (Auger) position, as indicated by a decal near the valve. See “**Diverter Valve**” on page 39.
8. Climb the ladder to the cart walkboard. Unlatch the lid and pivot it fully open. See “**Lid Opening**” on page 33.

Note: If you do not want to fully open lid until just before moving material, at least unlatch the lid. The auger nozzle may be in the way of unlatching if you wait until after auger positioning.

9. Check that the strainer basket is in place in the top of the bin. Remove any foreign material from the basket.

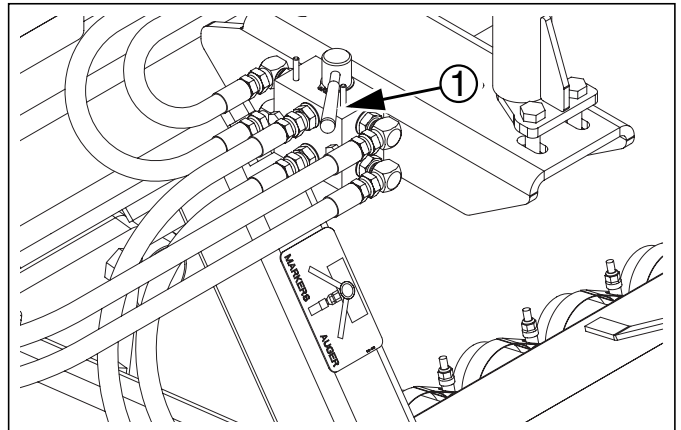


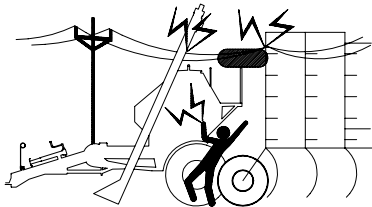
Figure 47
ADC2350/E Diverter Valve (to Auger)

26417

⚠ DANGER

Electrocution Hazard:

Keep clear of overhead power lines when positioning auger.



10. Un-pin and un-clamp the auger, and swing the inlet end to the ground. See “**Deploying Auger**” on page 38.

Refer to Figure 50

11. Extend the auger swing arms until the mount pin ① and the arm joint pin ② align with the curved slots in the locking plates.

NOTICE

Equipment Damage Risk:

If the trailing implement is folded, mind the outlet end of the auger, as the auger can strike components of a folded trailing implement.

12. Release the arm pins ①, ② into the plate slots.

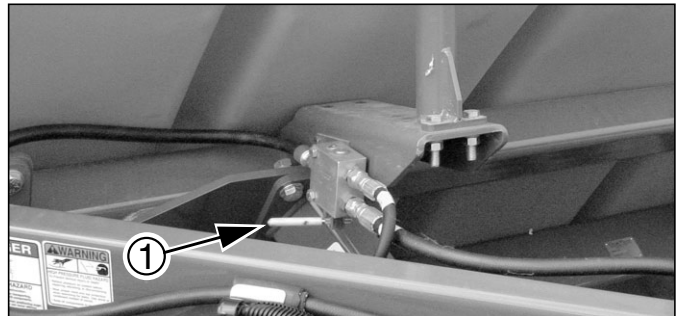


Figure 48
ADC2350B/BE Diverter Valve (to Fan)

29127

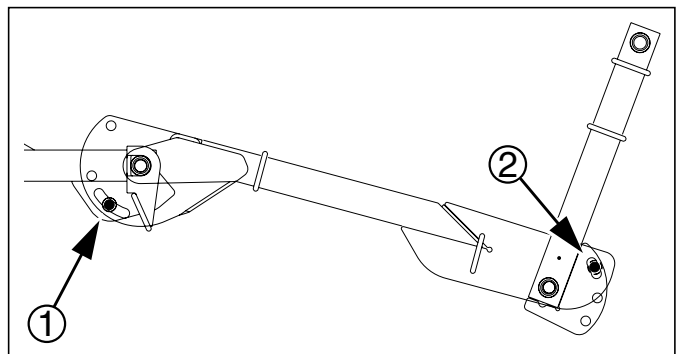


Figure 49
Arm for Material Loading

26352

Refer to Figure 50

13. Pull up on the hopper snap pin ① and pivot the auger hopper ② until its opening is facing up, and the snap pin is captured in a locking hole.

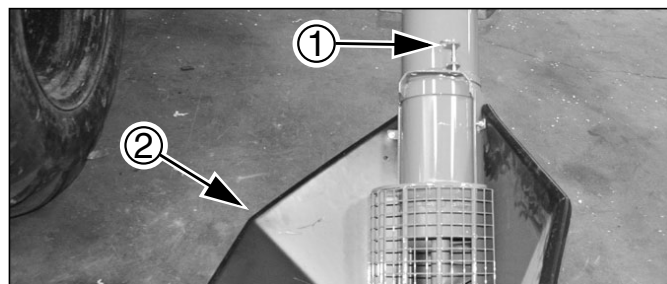


Figure 50
Auger Hopper Loading

26331

Refer to Figure 51

With the pins latched in the arm pivot slots, both front and rear hopper can be loaded from a single distribution point (inlet hopper location) at 100 inches (2.54 m) out from the hoppers and centered between the hoppers.

The outlet end can be swung from hopper to hopper by a single operator on the walkboard.

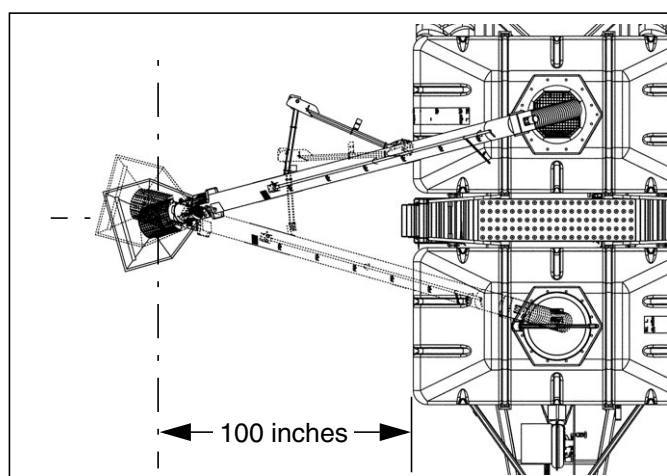


Figure 51
Single-Point Loading

26438

Refer to Figure 52

14. Swing the auger so the spout is centered over the hopper opening. Position your grain container for unloading into the auger hopper.

⚠ DANGER

Rotating auger. To prevent serious injury or death:

- ▲ Read instructions and safety information before operation.
- ▲ Keep hands, feet, hair and clothing away from rotating auger.
- ▲ Do not remove or modify any guards.
- ▲ Keep children well clear of work area.

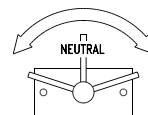
15. Energize tractor hydraulics for auger. You may need to tie the control lever in place or adjust the detent pressure on your tractor.



Figure 52
Loading Rear Hopper

26355

16. Start the auger by turning the auger direction valve off center to the left or right. Visually check auger for correct rotation direction. Reverse handle if needed. See “**Auger Hydraulic Controls**” on page 39.



12713

17. Slowly turn on material flow and fill hopper.

Note: Hopper fill level indications are molded into the side of the hopper.

18. When hopper is full, turn off the auger by moving the auger direction control to the center position.
19. Briefly run auger in reverse to return any residual material to the inlet hopper for recovery or disposal.
20. Return auger to storage position. See “**Storing Auger**” on page 40.
21. Turn off the tractor hydraulics.

CAUTION

Do not turn the auger hydraulic diverter handle until the hydraulics have been shut off. If the diverter is moved with hydraulics on, other equipment may suddenly begin moving.

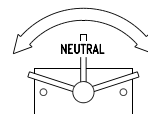
22. When circuit is off, set diverter to up (pass-through to markers or fan). See “**Auger Hydraulic Controls**” on page 39
23. Remove any foreign matter from the strainer basket.
24. Wipe any grain or foreign matter from lid-seal area on top of cart bin. Close lids and latch securely.

Unloading the Cart

The cart auger can be swung under the cart to unload material in hoppers. The material must be in a free-flowing state. If the material will not flow out the clean-out door, see “**Problem Clean-Outs**” on page 77.

For normal unloading:

1. Securely hitch cart or drill+cart to a tractor with adequate weight and power. Park cart on solid, level ground. See Tractor Requirements, “**Minimum Towing Vehicle**” on page 41.
2. Shut off all hydraulic power to the cart.



12713

⚠ DANGER

Keep clear of overhead power lines when positioning auger.

3. Deploy the auger. See “**Deploying Auger**” on page 38.
4. Check that the auger directional control on the auger tube is in the center, neutral/off position. See “**Auger Hydraulic Controls**” on page 39.

Refer to Figure 53

5. As needed, pull up on the auger hopper snap pin ① and rotate the auger hopper ② so that the opening faces up.
6. Install the calibration crank. It will be used to empty the flute chamber of the meters. See “**Meter Hand Crank**” on page 36.
7. For clean-out, make sure the variable rate gearboxes ⑤ are set:
 - above “10” if the final drive range gears are in High range mode, or
 - above “80” if the final drive range gears are in Low range mode.

To change variable rate gearbox and final drive range see “**Setting Material Rates**” on page 56. If set to “0”, operating the hand crank may fail to clear the meters of seed.

Refer to Figure 54 or Figure 55

8. Check that the diverter valve is set to Auger ①.
9. Start the tractor’s hydraulic system and engage the circuit for the Auger/Marker (model ADC2350/E) or Auger/Fan (model ADC2350B/BE). You may need to tie the tractor control lever in place.

Note: The function of the valve’s forward position depends on the cart and implement model.

10. If unloading the front hopper, continue at step 11.
If unloading the rear hopper, skip to step 15.

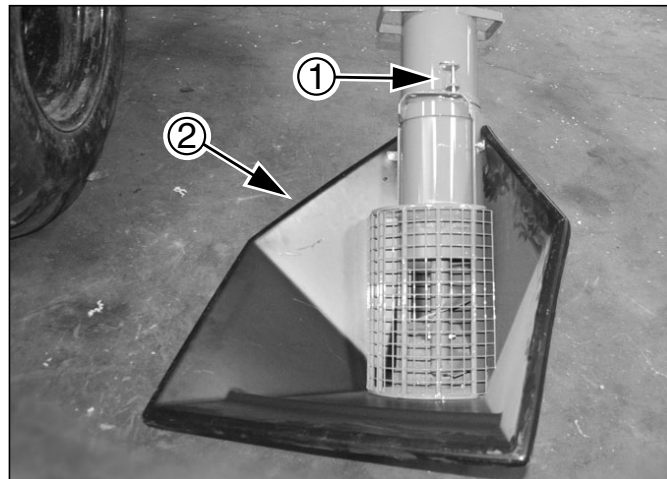


Figure 53
Orient Auger Hopper

26331

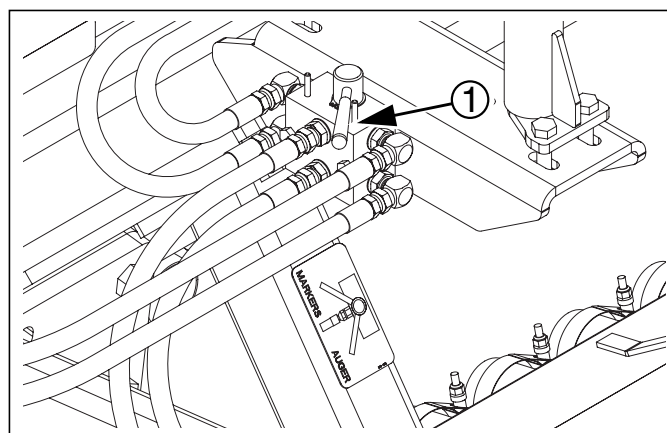


Figure 54
ADC2350/E Selector Valve (to

26416

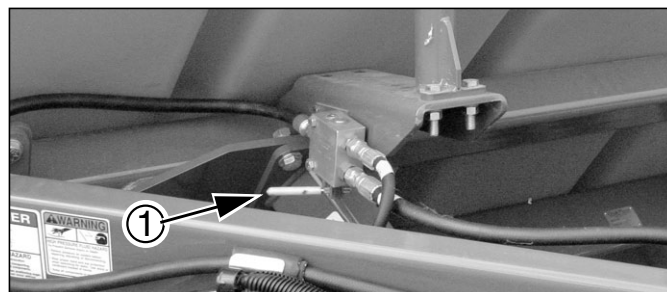


Figure 55
ADC2350B/BE Diverter Valve (to

29127

Unloading Front Hopper

Refer to Figure 56 and Figure 57

11. Swing auger assembly out from cart and engage mount lock pin ①. This prevents undesired movement of the inner arm while positioning the outer arm and auger tube.
12. Swing auger under the meter box clean-out door of the front hopper. The clean-out door is the forward door.



Figure 56
Auger Under Front Hopper

26356

Refer to Figure 57 (which depicts the arm orientation when the auger is positioned as shown in Figure 56)

13. Engage auger swing arm lock pin ②.
14. Skip to step 19.

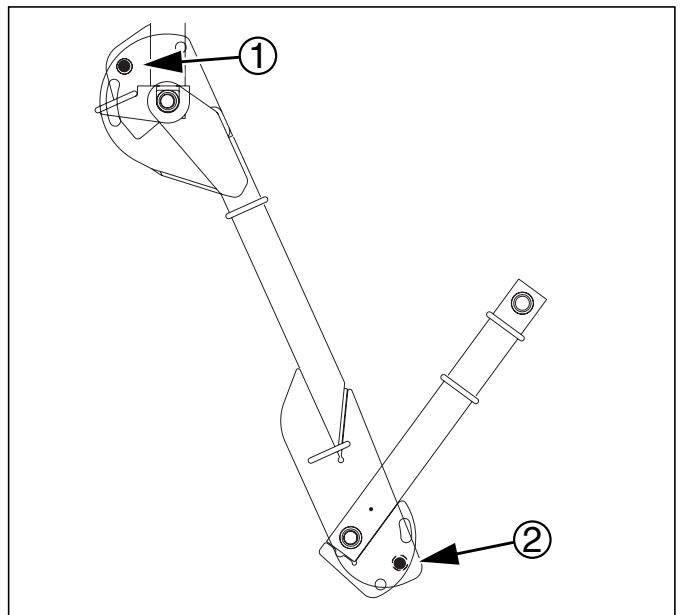


Figure 57
Arm for Forward Unload

26353

Unloading Rear Hopper

15. Remove the right ladder. See “**Removing the Right Ladder**” on page 32.

Refer to Figure 58 and Figure 59

16. Swing auger assembly out from cart and engage mount lock pin ①. This prevents undesired movement of the inner arm while positioning the outer arm and auger tube
17. Swing auger under the meter box clean-out door of the rear hopper. The clean-out door is the forward door.



Figure 58
Auger Under Rear Hopper

26357

Refer to Figure 59 (which depicts the arm orientation when the auger is positioned as shown in Figure 58)

18. Engage auger swing arm mount lock pin ① and swing arm joint pin ②.

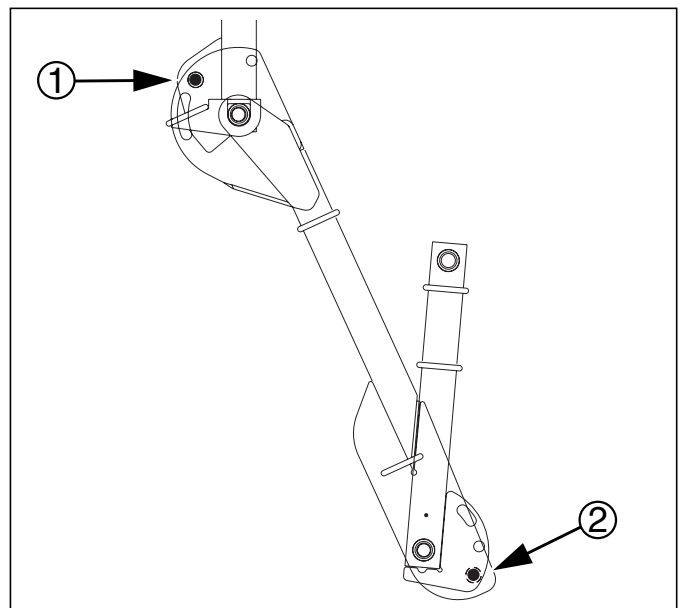


Figure 59
Arm for Rear Unload

26354

Unloading Either Hopper, cont...

19. Position your grain container under the auger spout.
20. Before restarting the tractor hydraulics, check the configuration of the tractor and cart hydraulics. The cart diverter valve is located at the front right corner of the forward bulk hopper. See “**Auger Hydraulic Controls**” on page 39.
21. Engage tractor lever for auger circuit.

⚠ DANGER

Rotating auger. To prevent serious injury or death:

- ▲ *Read instructions and safety information prior to operation.*
- ▲ *Keep hands, feet, hair and clothing away from rotating auger.*
- ▲ *Do not remove or modify any guards.*
- ▲ *Keep children well clear of work area.*

Refer to Figure 60

22. Start the auger by turning the auger motor control left or right. Visually check auger for correct direction of rotation. Reverse handle if needed.

⚠ CAUTION

Follow manufacturer recommendations for protective equipment when working with treated seeds.

Refer to Figure 61

23. Slowly open the clean-out door ① on the bottom of the meter.

This is the forward of the two doors on the meter.

24. When material flow from the clean-out stops, open the calibration door to ensure complete clean-out. The calibration door is the rear door.
25. Turn the hand crank counter-clockwise to empty meter. Turn until material flow is nil.
26. Set the auger directional control to neutral/off.
27. Latch-out pins on auger swing arm joint and mount. Move auger inlet out from under cart.
28. To empty the other hopper, return to: step 15 on page 50 for the rear hopper, or step 11 on page 49 for the front hopper. Otherwise continue at step 29.

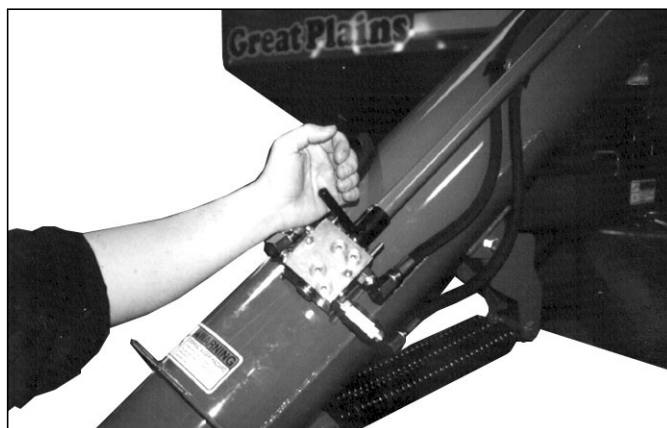


Figure 60
Auger Directional Control

12713
14884

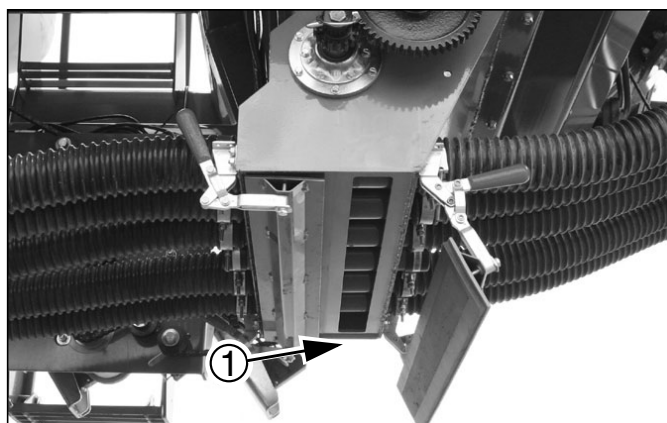


Figure 61
Hopper Unloading Door

26340

NOTICE

Equipment Damage Risk:

Rotate the hand crank only in the counter-clockwise direction, as shown in Figure 32, page 36. Operating in reverse can cause meter gear box damage.

Unloading Closeout

29. Remove pin from hand crank shaft, return hand crank to storage position, and re-pin.
30. If storing at end of season, or having residual material in the auger tube is a concern, reverse the directional control on the auger until no seed remains in the auger tube.
31. Set the tractor circuit for the auger to neutral, or shut down tractor hydraulics completely.

Refer to Figure 37 on page 39

32. With auger circuit off, set diverter handle back (pass-through to markers or fan).

CAUTION

Do not move the auger hydraulic diverter valve to the forward position until the hydraulic circuit has been shut off at the tractor. If the diverter is moved with hydraulics on, the drill markers will suddenly begin moving.

Refer to Figure 62

33. Clean out auger hopper by pulling up the hopper snap pin ① and swiveling the hopper ② to the side.
34. When empty, fold the auger swing arm (middle pivot forward), and move it nearly into the cradles.
35. Swivel the auger hopper for transport or storage. See **"Storing Auger"** on page 40.
36. Return auger to storage cradle. See **"Storing Auger"** on page 40.
37. If removed, re-attach lower ladder. See **"Removing the Right Ladder"** on page 32.
38. Wipe top and bottom of meter-box seal flanges, making sure all material is removed. Look for material caught between seal and flange.
39. Close clean-out and calibration doors. Close and latch bulk hopper lids if they were open for unloading.

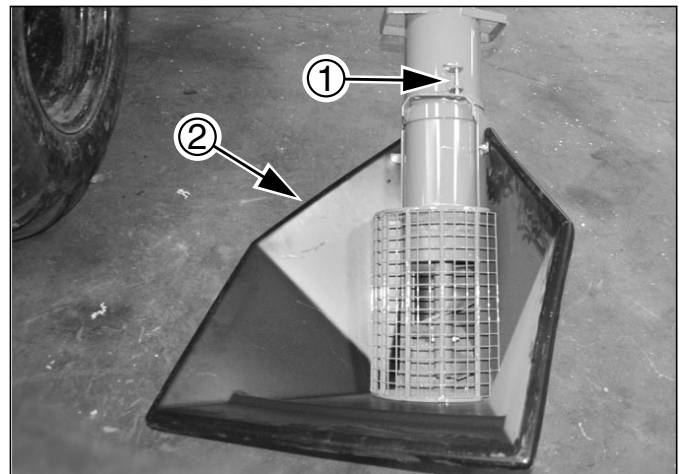


Figure 62
Empty Auger Hopper

26331

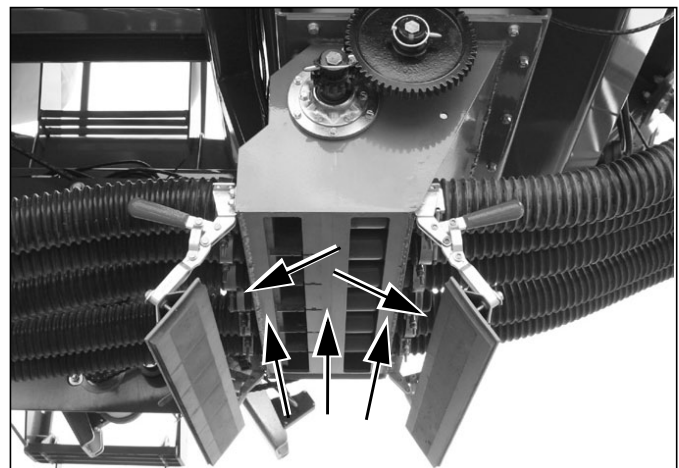


Figure 63
Checking Meter Box Seals

26341

Field Operations

This section presumes that all pre-operation check have been made on both air cart and drill, and cart is loaded with seed and any treatments.

Single Hopper Operation

There are two ways to disable a meter if only one hopper is being used.

1. For short planting sessions, simply set the variable rate gearbox control arm to zero (0). The input shaft to the gearbox still rotates, but the output shaft does not, and no material is metered.
2. For extended planting sessions, loosen the idler and remove the gearbox input drive chain. This minimizes wear on the gearbox.

Fan Speed

Fan speed is monitored and reported by the seed monitor, but is manually controlled. The optimum rate depends on the seed type, any treatments. **"Fan Speed Adjustment"** on page 68 for further information.

Refer to Figure 64

ADC2350/E only: Fan shut-off valve must be open for fan to operate. This valve is not present on ADC2350B/BE.

NOTICE

Equipment Damage Risk:

Always engage the fan with the tractor at a low engine speed. Engaging the fan when the tractor is at high speed may cause fan damage.

Do not reverse hydraulic flow with the fan running.

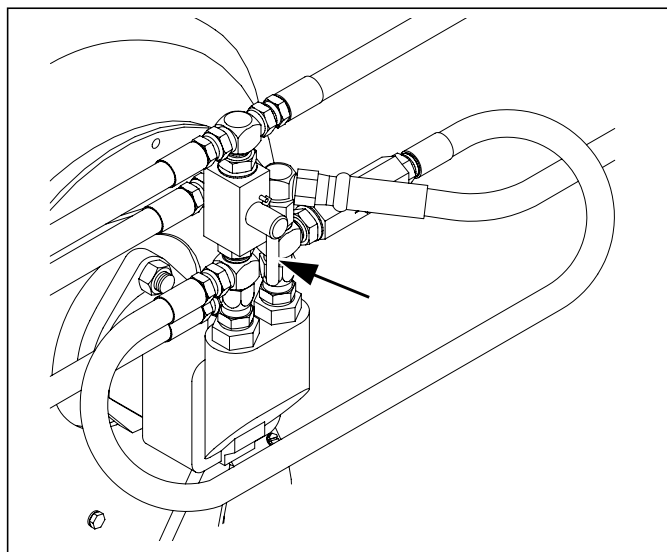


Figure 64
Fan Shutoff Valve Open

29582

Refer to Figure 65

NOTICE

The proper reading for the magnehelic air pressure gauge is 12 to 25 inches of water. A sudden drop in pressure is a sign of a possible leak which can negatively affect seeding.

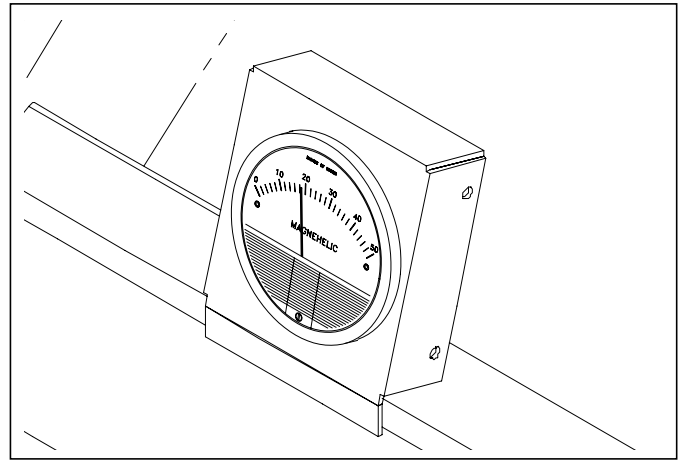


Figure 65
Fan Air Pressure

26425

Final Field Checklist

- ☐ Set seed meters per chart and calibration.
- ☐ Check diverter valve set to marker or fan.
Check fan shut-off valve open (fan enabled)
- ☐ Set fan to speed suitable for seed. Watch fan at start-up to ensure correct direction of rotation.
- ☐ Run fan for at least 15 minutes before planting.
- ☐ Check air pressure gauge for 12 to 25 inches of water pressure.
- ☐ Check all seed hoses secure.
- ☐ Check for air leaks at lids and meter box seals.
- ☐ Complete drill checklist.

Planting Sequence

1. Lower drill 5 to 10 feet before initial seeding point.
2. Pull forward and begin planting.
3. Raise drill for turns (meters stop automatically).

Planting

Be aware of the 5 to 10 feet of drill-lowered operating distance required for seed to reach the row units.

If you stop in the middle of a pass, raise the drill and back up 10 feet before resumption of seeding.

Parking

Follow these steps when parking the drill for periods of less than 36 hours. For longer periods, see *Storage*, the next topic.

1. Place the cart on firm, level ground.
2. Check that hopper lids are latched, and secure the hopper lids with security cable or padlock and chain to prevent entry by children. See **"Lid Closing"** on page 33.
3. ADC2350/E only: Remove jack from storage position and pin securely to lifting stob on outside of cart tongue. See **"Hitching"** on page 20.
4. ADC2350/E only: If ground is soft place a wide block or plate under the jack to increase contact area.
5. Securely block cart tires to prevent rolling.
6. ADC2350/E only: Extend jack until weight is off of the tractor drawbar.
7. Unhook electrical lines and install plugs as provided.
8. Release pressure on hydraulic system, then disconnect hydraulic lines and pull all lines back onto cart tongue. Be sure hose ends do not rest on the ground.
9. Disconnect the safety chain.
10. Unhitch from tractor or leading implement.

Storage

If possible, leave the air cart and drill connected for extended storage.

Store the air cart and drill where children do not play. If possible, store them inside for longer life.

1. Unload all material in hoppers. See **“Unloading the Cart”** on page 47.
 2. Unlatch the hopper lids so that the seals are not in compression during storage. Route a chain or security cable through the hold-down U-bolt and the latch handle to prevent unauthorized entry, and prevent high winds from opening the lid.
 3. Empty the hoppers completely. Hand crank the meters several turns to empty completely. See **“Meter Hand Crank”** on page 36. Blow out the meters with air to remove all material.
 4. Unless cleaned out at last loading or during unload above, deploy the auger, and run the motor in reverse until auger is completely empty. See **“Auger Operations”** on page 38.
 5. Return the auger to its cradle with the hopper in the extended storage orientation. See **“Storing Auger”** on page 40.
 6. Remove the drive chains and store in oil.
 7. Lubricate the cart at all points listed under **“Lubrication and Scheduled Maintenance”** on page 80.
 8. Check all bolts, pins, fittings and hoses. Tighten, repair or replace parts as needed.
 9. Check all moving parts for wear or damage. Make notes of any parts needing repair before the next season.
 10. Open the meter-box doors completely to release seal pressure and allow rinse water to exit.
 11. Thoroughly wash the hoppers with water inside and out to prevent corrosion from fertilizer or seed treatments.
 12. Set doors to slightly open, but not wide enough for animals to enter the meters. Wire doors in place if needed.
- Do not store the cart with seals compressed.
13. If the cart is disconnected from the implement for storage, plug all 2½ inch openings to prevent pests from nesting.
 14. Raise and stow the walkboard ladder extensions, to discourage climbers.
 15. Use touch-up paint to cover scratches, chips and worn areas to prevent rust.

Adjustments

To get full performance from your air cart, you need an understanding of all component operations, and many provide adjustments for optimal field results. Some of these have already been covered earlier in this manual.

Even if your planting conditions rarely change, some of these items need periodic adjustment due to normal wear.

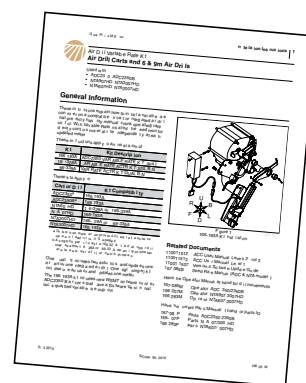
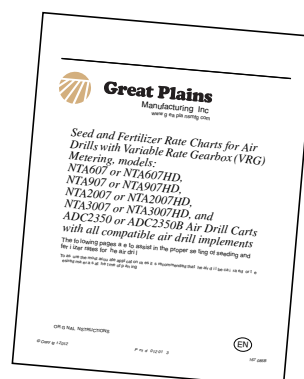
Adjustment	Page	The Adjustment Affects
Cart Sprocket Setup	19	Matching published seed rates
Leveling Cart	21	Planting consistency
Seed Monitor Configuration	43	Correct application rate reporting, without false alarms.
Seed Meter Final Drive Range	61	Seed population or fertilizer rate (coarse control)
Setting Variable Rate Gearbox	61	Seed population or fertilizer rate (fine control)
Meter Calibration	62	Achieving desired application rate
Changing Meter Flutes	66	Using high rate charts in the Appendix of the Seed Rate manual
Fan Speed Adjustment	68	Consistent seed population and minimum seed damage
Implement Lift Switch Adjustment	69	Avoiding wasted and unplanted seed
Chain Slack	75	Reliable operation and minimum wear

Setting Material Rates

Rate setting details are covered in the Seed Rate Manual 167-085B, which also contains seed and fertilizer rate charts. The topic is covered only in summary form in the present manual.

For an air drill cart with the optional Variable Rate Kit (servo actuators at variable rate gearboxes), see the detailed instructions in the 166-263M Installation and Operation manual.

The ADC2350/E or ADC2350B/BE and attached drill is a volumetric implement. For a given metering configuration, rates will vary for materials with different density and granularity. The rate charts provide starting point, but calibration is essential for accurate application (even if using both meters for the same material at the same rate). Material rates are set independently for each hopper and meter.



Check Drive System

Reliable material rates are only achieved if the ground drive system is working properly. The transport tires must be the correct size, and must be inflated to factory specifications. Drive sprockets must be correct for the implement.

Check Flute Shaft Type

For some unusual very high rate applications and some small seeds, Great Plains offers alternate meter flute shafts (page 85) that change rates to 150%, 200% or approximately 25% vs. the factory standard shaft.

Refer to Figure 66

(which depicts a single flute “star” with its halves, a single star mated, two stars staggered, and a filler)

Know your “stars” setup. If your air drill cart has never been changed from factory standard, you have standard meter flute shafts with 2 “stars” (4 halves) per outlet. How many and what type of “stars” you have determines which rate chart to use.

Refer to Figure 67

(depicting an inspection from below meter)

If the configuration is not known, inspect the flute shaft from the hopper lid (if hopper empty), or from below the meter, with the calibration door fully open. It is not necessary to remove the shaft. Inspect the flutes (① or ②), and filler rings ③ at active outlets.

On a standard “2 star” shaft, each seed drop outlet contains two standard flute sets (4 halves ①), each pair staggered slightly from the next. Unused outlets are fully blocked by filler rings ④.

On a “3 star” shaft, each outlet contains 3 flute ① sets.

On a “4 star” shaft, each outlet contains 4 flute ① sets, with no fillers between adjacent drops.

On a small seed shaft, each outlet contains one set of shallow flutes ②.

See also “**Changing Meter Flutes**” on page 66.

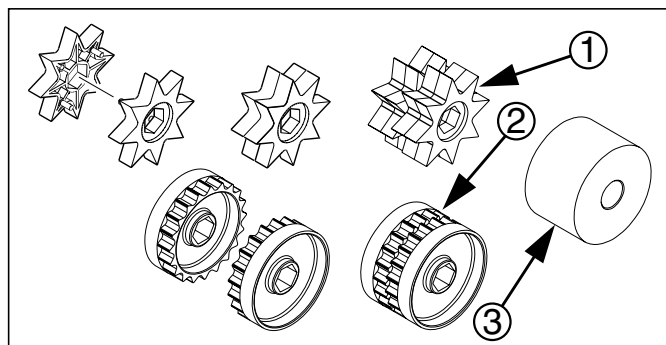


Figure 66
Standard / Small Stars and Filler

32400

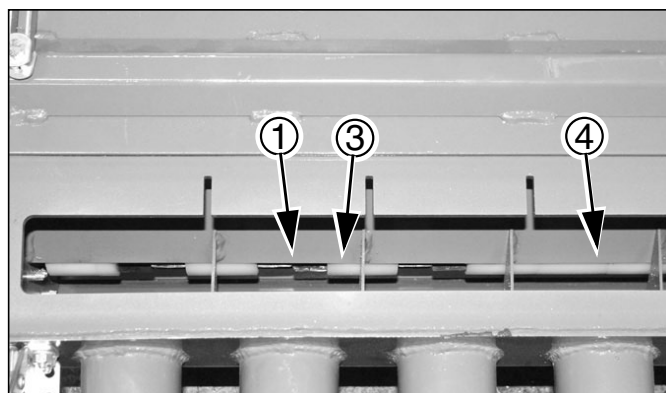


Figure 67
Checking Flute Shafts

26426

Find Your Chart and Rate

Standard “2 star” rates are in the main section of the Seed Rate manual. “3 star” and “4 star” and Small Seeds rates are in the Appendix of the Seed Rate manual.

If you are planning to apply two different materials (such as seed and fertilizer) in each hopper, perform the setup steps separately for each hopper, as the configurations (including stars) may be completely different.

1. Confirm that the chart is for the material and star configuration you have.
2. Find your target population or application rate.

Note: If you have a choice of charts, for most consistent results, pick one that results in a variable rate gearbox value between 30 and 70.

“High Rate” charts are provided for some seeds, but the charts do not cover all possible combinations of dual-hopper and/or high-rate flutes. You can use any standard-rate single-hopper chart.

To find the initial chart rate

$$\text{AdjustedRate} = \text{FieldRate} \times \text{LookupFactor}$$

In the example, the desired field rate was 200 lbs/ac.

$$100 = 200 \times 0.5$$

Lookup settings for 100 lbs/ac. in the charts. Initially set each meter for a 100 lbs/ac rate, and calibrate.

Adjustment for Small Seeds

Small Seeds rates are provided for some^a, but not all seeds that might be compatible with the optional smaller/shallow flute shaft. If the seed has a chart for the standard shaft, choose a chart rate that is about 500% (5x) the desired field rate. The Small Seeds shaft meters at between 20% and 50% of the standard shaft.

Monitor Material Configuration

The DICKEY-john® IntelliAg® monitor reads meter shaft speeds and can report pounds/acre (or kg/ha) planted.

In order to report accurately, the monitor requires several inputs. Inputs that rarely change were entered during cart setup. Inputs specific to particular materials (seed or fertilizer) need to be entered when those materials are first used, and when changed.



See the DICKEY-john® Quick Start guide more detailed instructions.

31374

Target Rate Adjustments

	Hoppers for This Material	
	Single	Dual
2 Stars (std)	Rate is 1× Chart Use chart rate	Rate is 2× Chart Lookup 0.5x
3 Stars	Rate is 1.5× Chart Lookup 0.67x	Rate is 3× Chart Lookup 0.33x
4 Stars	Rate is 2× Chart Lookup 0.5x	Rate is 4× Chart Lookup 0.25x



25421



a. See “Tested Small Seeds” on page 85.



1. Material Configuration Setup Screen for Seeds

“Type” - This must be set to “Gran Seed Monitor” to configure for seeds.

“Density Units” - If configured for “U.S.” mode (U.S. customary units), this is pounds-per-bushel or pounds-per-cubic-foot. In metric mode this is always kg/liter.

“Density” - This is the density of seed being planted. Obtain this information from the material container/supplier. If unknown, use the value specified in the rate chart.

“Total Number of Towers” - This is the number of primary hoses coming off the rear meter box (typically 4, 5 or 6).

“Calibration Constant” - This is the number listed in the seed rate charts for the rate you are planting or the number obtained from running the calibration routine for your specific seed.



2. Material Configuration Setup Screen for Fertilizer

“Type” - This must be set to “Gran Fert Monitor” to configure for fertilizer.

“Density” - Enter the density of Fertilizer being applied, in pounds-per-cubic-foot (kilograms-per-liter). Obtain this information from the material container/supplier. If unknown, use the value specified in the rate chart.

“Total Number of Towers” - This is the number of primary hoses coming off the rear meter box.

“Calibration Constant” - This is the number listed in the seed rate charts for the rate you are planting or the number obtained from running the calibration routine for your specific fertilizer.

Note: Always enter **Density Units** before entering the **Density** value. Changing the value of **Density Units** will alter the value of **Density**.



3. Channel Setup Screen

Channel 1 setups are for the front hopper.
Channel 2 setups are for the rear hopper.

“Type” - Set this to either “Gran Seed Monitor” or “Gran Fert Monitor” based on the type of material in each hopper.

“Material Name” - Choose the name of the material configured for each channel in steps 1 and 2 above.

“Sensor Constant” - [360]

“Gear Ratio” - [1]

“Channel Width” - is your Implement Width (swath) in inches (cm). Precise row/swath data is found in the air cart or implement Operator’s Manuals.

If the monitor inputs are correctly entered, the monitor is a handy tool for fine tuning the variable rate gearbox setting. If the rate reported by the monitor does not match the desired planting rate, rotate the crank to adjust the variable rate gearbox control arm slightly so as to achieve the desired planting rate.

Meter Rate Adjustment

Seed rate is determined by:

- Flute shafts (covered on page 57):
standard 2-star/1x rate, or
optional 3-star/1.5x or 4-star/2x rates
- Single/twin hopper metering
- Seed meter Final Drive Range gearing
- Variable Rate Gearbox setting

The Seed Rate Manual charts are based on cleaned untreated seed of average size and test weight. Many factors affect meter rates including foreign material, seed treatment, seed size, field conditions, and test weight.

Minor adjustments will be needed to compensate for these factors. Initially set the rates according to the charts, then calibrate for your material and conditions.

Calibration is also required to set up the monitor Calibration Constant. With the correct Calibration Constant and material density the monitor can be used to help fine tune the variable rate gearbox setting.

Seed Meter Final Drive Range

Refer to Figure 68 and Figure 69

The meter flute shaft ① is driven by the agitator shaft ② through a pair of interchangeable gears ③, ④. The positioning of these gears creates two final drive ranges.

Each seed rate chart is based on a specific Final Drive Range. The Ranges are:

- “High” range, which is used for larger seeds and higher seeding rates
- “Low” range, which is used for smaller seeds and lower seeding rates

The two seed meter shafts are labeled “DRIVING” and “DRIVEN”.

The “DRIVING” shaft is the upper forward shaft.
The “DRIVEN” shaft is the lower rear shaft.

Refer to the Seed Rate chart (or Fertilizer Rate chart), the table below, and Figure 68 and Figure 69 for setting the seed meter final drive range.

FINAL DRIVE RANGE	DRIVING	DRIVEN
LOW RANGE	17 Tooth Small	54 Tooth Large
HIGH RANGE	54 Tooth Large	17 Tooth Small

1. Remove the lynch pins ⑤ from the ends of both shafts.
2. Remove and position the gears as shown in the table above.
3. Secure with lynch pins.

Setting Variable Rate Gearbox

The variable rate gearbox allows you to infinitely vary the meter drive speed to attain a wide range of seeding rates. The ratio of gearbox input speed to output speed is controlled by the position of a gearbox control arm. The control arm has an indicator that points to a scale marked in degrees. The Seed Rate and Fertilizer Rate charts show the rate for each degree of the control arm rotation.

Refer to the seed rate charts and set each variable rate gearbox control arm to its scale setting for the desired seeding rate. With the optional servo-controlled meters, the rate is set via the seed monitor terminal.

To adjust the Variable Rate Gearbox for each hopper:

Refer to Figure 70

1. Remove the hairpin cotter securing the gearbox adjustment crank.
2. Rotate crank until the control arm indicator points to the scale setting that matches the rate from the Seed Rate chart or determined by calibration.

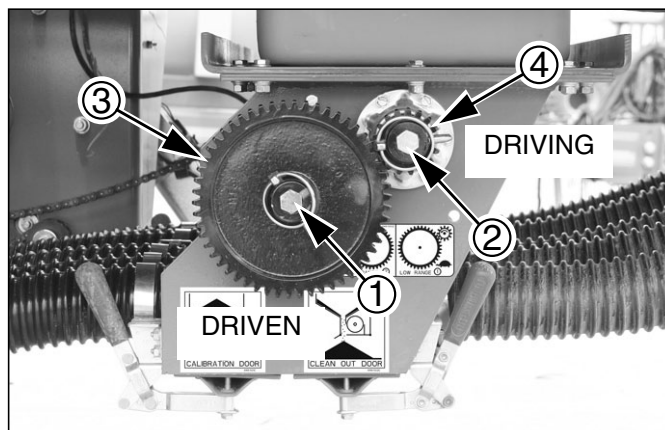


Figure 68
Low Final Drive Range

26368

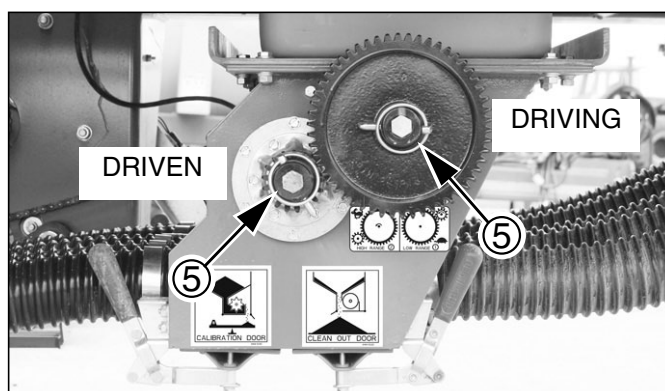


Figure 69
High Final Drive Range

26369

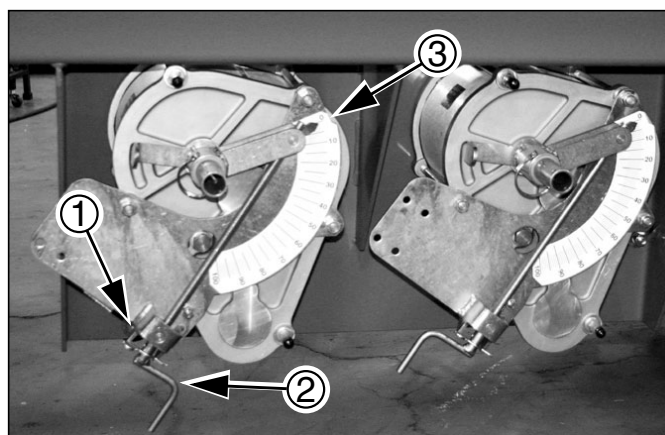


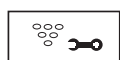
Figure 70
Variable Rate Gearboxes

26306

3. Reinsert the hairpin cotter.

Note: The variable rate gearbox operates optimally between 30 and 70. If a seed has charts for both HIGH Range and LOW Range, the most consistent results are obtained when the gearbox control arm is set between 30 and 70. Settings below 20 degrees are not recommended. When the control arm is set above 70 degrees, large movements of the arm result in small changes in seeding rate.

Note: If you will be metering the same material from both bins at the same time, use the Seed Rate chart entry for *half* the desired application rate. Do not use a half scale setting - the effect of the variable rate gearbox control arm is not linear.

**Meter Calibration**

Push  then  and then  to get to meter calibration.

The Seed Rate charts are based on cleaned untreated seed of average size and test weight. Many factors affect meter rates including foreign material, seed treatment, seed size, field conditions, and test weight. The Fertilizer Rate chart is based on a representative granular fertilizer.

Great Plains recommends calibrating for the exact materials you intend to apply. Calibration determines two very important settings for achieving accurate rates:

- The pounds per acre (or kg/ha) of the meter at the current variable rate gearbox setting for your particular seed or fertilizer.
- The Calibration Constant for the monitor to accurately report the planting rate of your particular seed or fertilizer.

Calibration Procedure

The seed monitor must be correctly set up for both the air drill and the material(s), or the calibration will not result in useful monitor displays.

1. Set the Final Drive Range gears and Variable Rate Gearbox setting to the values suggested in the Seed Rate Chart (or Fertilizer Rate Chart).
2. Make sure there is enough material in the hopper(s) for at least $\frac{1}{10}$ acre (or $\frac{1}{10}$ hectare) plus an extra 75 to 100 lbs. (35-45 kg).

Refer to Figure 72

3. Since only one calibration bag is provided, remove one of the final range gears ① from the meter that is NOT being tested, to disable it.
4. Open the calibration door ② of the meter being calibrated. The calibration door is the rear of the two bottom doors.

NOTICE

Material Loss Risk: Do not open the front door. This is the clean-out door. Opening the front bottom door will drain the hopper. Once the front clean-out door is open it is difficult to stop seed flow until the hopper is empty.

Refer to Figure 72

5. Insert calibration crank onto clutch shaft. See “**Meter Hand Crank**” on page 36.

NOTICE

Rotate the calibration crank only in the **COUNTERCLOCKWISE** direction. Operating in reverse can cause gearbox damage.

6. Turn the calibration crank enough turns to be sure the meter flutes are full and the system is metering.

CAUTION

Obey manufacturer or grower recommendations for safety equipment and protective gear when using treated seeds.

7. Wipe all material off the flanges around the meter door.
8. Accurately weigh an empty container large enough to catch material coming out of the meter. The calibration bag supplied with your cart weighs 3.36 lbs (1.53 kg).

Refer to Figure 73

9. Place container under open calibration door. If using the calibration bag, loop bag handles over the door handles and hook the bag to the front of the meter.
10. On the seed monitor terminal,

set the monitor to **Calibration** mode .

enter [5] for the “# Meter Revs”, and

press the **Start** softkey .

This “# Meter Revs” parameter does not affect the monitor calibration because the monitor counts actual meter shaft revolutions and uses that count to compute the Calibration Constant.

The “# Meter Revs” parameter is used for a progress bar displayed during calibration.

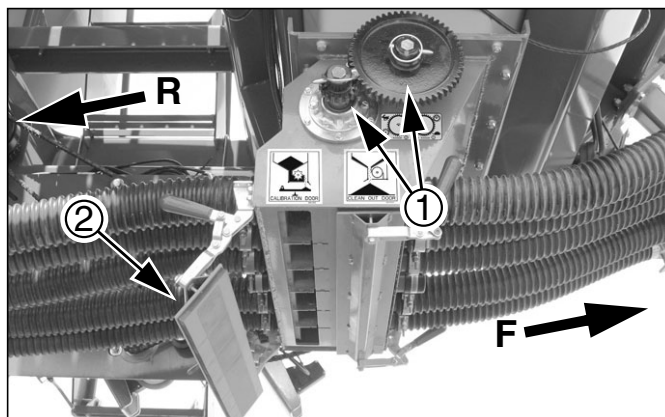


Figure 71
Calibration Door Open

26339



Figure 72
Calibration Crank

26333



Figure 73
Calibration Bag

26402

11. Turn the calibration crank counterclockwise for the number of turns to simulate $\frac{1}{10}$ acre (or $\frac{1}{10}$ hectare).

Note: It is important to turn the calibration crank rapidly. (About 2 to $2\frac{1}{2}$ revolutions per second is the proper speed to simulate 5 to 6 mph planting speed.)

See chart below for the correct number of turns for your implement.

Drill Model	Clutch Shaft (Crank) Revs for...	
	1/10 Acre	1/10 Hectare
CTA4000	$30\frac{1}{2}$	$75\frac{1}{2}$
CTA4000HD	$30\frac{1}{2}$	$75\frac{1}{2}$
NTA3010	$41\frac{1}{4}$	102
NTA3510	$31\frac{1}{4}$	77
3N-4010HDA	31	$76\frac{1}{2}$

Note: A longer calibration is always more accurate, especially for low rates and small seeds. $\frac{1}{10}$ acre is easy to calculate and is a minimum calibration run.

12. Wipe all the material off the flanges around the meter doors and capture that material in the calibration container.


The right column contains an example for the following steps.


Example: Wheat, High Rate, 2 Stars
Target Seed Rate: 67.6 pounds per acre
Initial Variable Rate Gearbox setting: 38

13. Accurately weigh the container plus material. Subtract the empty container weight to determine the application rate for $\frac{1}{10}$ acre (or $\frac{1}{10}$ hectare).

$$\text{SampleWeight} = \text{MeasuredWeight} - \text{ContainerWeight}$$

Example:
MeasuredWeight is 10.92 pounds
SampleWeight = 10.92 - 3.36,
which is: 7.56 pounds

14. Press the Stop softkey  on the monitor and enter the sample net weight (*SampleWeight*). The monitor responds with a Calibration Constant.

Push the Save softkey  to accept this value.

15. Multiply the sample size by 10 to determine application rate per acre (hectare) at the current variable rate gearbox setting.

$$\text{CalibratedRate} = \text{SampleWeight} \times 10$$

Example:
CalibratedRate = 7.56×10 ,
which is: 75.6 lbs/ac

This is higher than our target rate of 67.6 lbs/ac.

If the calibrated rate matches the target rate, skip to step 21. Otherwise...

16. Subtract the calibrated rate per acre (or hectare) from the target rate to determine a correction difference.

$$\text{RateDifference} = \text{TargetRate} - \text{CalibratedRate}$$

17. Refer to the seed rate chart for Seed Rate gearbox setting values for the target rate.

Example: $\text{TargetRate} = 67.6$
 $\text{RateDifference} = 67.6 - 75.6$,
 which is: -8 pounds

The calibration run metered 8 pounds too much.
 You must *lower* the gearbox setting to compensate.

Example:

Initial Variable	60.5	67.8	35	82843
Rate Gearbox	64.2	72.0	36	82969
Setting: 38	68.1	76.3	37	83099
	72.0	80.7	38	83232
	76.0	85.2	39	83369

$\xrightarrow{\text{TargetRate}}$

18. Determine the amount of rate change for each degree of control arm rotation from the target setting.

If the calibrated rate was higher than target (as in our example), examine lower gearbox setting values.

If the calibrated rate was lower than target, examine higher gearbox setting values.

Example:
 1 degree lower reduces rate by 67.6-63.9, or 3.7 lbs
 2 degrees lower reduces by 67.6-60.4, or 7.2 lbs
 3 degrees lower reduces by 67.6-56.9, or 10.7 lbs

19. Adjust the control arm by the number of degrees needed to adjust for the calibration difference.

The rate of the arm adjusting crank is more than one scale degree per turn, and the crank can only be pinned at quarter turns. Pin it when the indicator is closest to the corrected setting.

Example:
 The calibration difference was 8 pounds.
 Adjusting down 2 degrees would correct by 7.2 pounds, but adjusting by 3 would over-correct to 10.7 lbs.

So adjust the gearbox setting to just over 2 degrees lower, to a final scale setting slightly below 36.

20. Run the calibration again, starting at step 9, using the new Variable Rate Gearbox scale setting.

This validates the gearbox adjustment, and establishes a new, more precise Calibration Constant.

21. With the present meter satisfactorily calibrated, re-mount the final drive gear removed from the other hopper.
22. Repeat the calibration procedure for the other hopper, starting at step 1.

If only planting from a single hopper, see “**Single Hopper Operation**” in the air cart Operator’s manual for methods of disabling the meter on the hopper not in use.

23. Remove and store the calibration crank.

Changing Meter Flutes

To order high rate flute shafts, see “**Alternate Flute Sets**” on page 85. To install a set of these shafts (or re-install the standard shafts), start with the front meter, as the task is a bit easier there. Save all parts for immediate or future re-use.

Hopper must be empty for this procedure. see “**Unloading the Cart**” on page 47.

Refer to Figure 74

1. On the right end of the meter box, remove and save the lynch pins ① from the final range gears ②, and then remove and save the gears.

Note which size gear was on the agitator output and flute input shaft.

Refer to Figure 75

2. Remove and save the outer ring of six (6) self-tapping hex head bolts ①, that secure the outer flange to the meter box.

Note: Do not remove the six bolts ② that secure the bearing flange to the outer flange. The shaft to be installed includes its own flange.

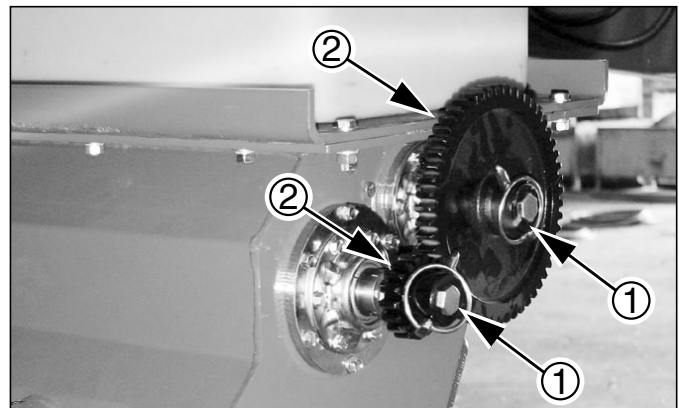


Figure 74
Remove Gears

26337

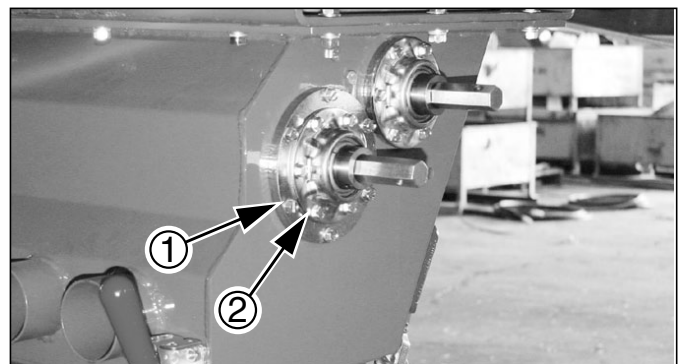


Figure 75
Remove Flange Bolts

26338

Refer to Figure 76

(Shown with meter box off and various components removed for clarity. It is not necessary to dismount or further disassemble meters to swap flute shafts).

3. From the right end of the meter box, carefully withdraw the current flute shaft ①. It is likely that the flange has a bead of silicone gasket. You may need to carefully pry the flange loose from the box.

Note: For the rear meter box

It will not be possible to withdraw the shaft straight out, as it would strike the tire. When the right end of the shaft is close to the tire, angle the shaft forward to clear the tire.

4. Store the old shaft in the carton in which the new shaft was supplied. Mark the carton with the number of active hoses (towers) and the number of stars (factory standard is 2). This will reduce the risk of mistaking the carton/contents in the future.
5. Apply a bead of silicone sealant to the inside face of the outer flange, just inside the bolt hole pattern.
6. Carefully insert the new shaft in the meter box.

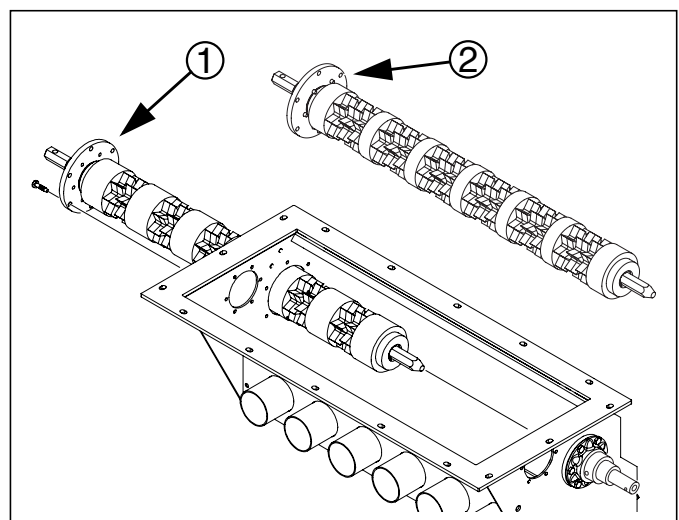


Figure 76
Exchange Flute Shafts

26335

7. When the flange on the right end is fully seated against the box, secure it with the 6 saved bolts. Give the shaft a few turns.
8. Re-mount the gears. Refer to the Seed Rate manual for the gear assignments for the agitator and flute shafts. Note the pin hole orientation on the shaft and on the gears. The gears can only be pinned in 2 of the 6 possible ways they can be placed on the shafts.

Fan Speed Adjustment

Fan speed (rpm) is available on the seed monitor. Have the seed monitor powered up for fan adjustments.

Refer to Figure 77

ADC2350/E only: Fan shut-off valve must be open for fan to operate. Valve not present on model ADC2350B/BE.

Hydraulic Fan Start-Up

With the ADC2350/E fan shut-off valve open, and the tractor at a low idle speed, energize tractor hydraulics for fan. Lock hydraulic lever in place for continuous operation. Refer to your tractor operator's manual for instructions on operating hydraulic motor.

NOTICE

Always engage the fan with the tractor at a low engine speed. Engaging the fan when the tractor is at high speed may cause fan damage.

Check that the bottom of the fan rotor rotates toward the fan outlet port. If not, reverse the direction of the hydraulic flow from the tractor.

Run fan for at least 15 minutes before seeding. Hydraulic fluid must be warm before fan and wing down pressure will operate properly.

1. Check bin-lid and meter-box seals for air leaks. Adjust the latch or replace the seals to prevent leakage.

Note: It only takes a very small air leak to cause large variations in the seeding rate and pattern.

2. Watch the seed monitor and adjust fan speed by increasing or decreasing hydraulic flow from the tractor. Use the following guidelines and the fan speed chart at right to properly adjust fan speed.
 - Higher fan speeds improve seed distribution, but high fan speeds also increase the chance of seed damage and bounce.
 - At first, adjust fan speed to the high end of the range suggested in the chart at right. Watch for excessive seed cracking and seed bounce from the furrow, then reduce fan speed if necessary.
 - Follow the chart at right as a guide. Actual fan speeds will vary with implement width, row spacing, seeding rates, seed weights and seed size. Increase fan speed for heavier seeding rates or seed. Reduce fan speed for lighter seeding rates and seed more prone to cracking.

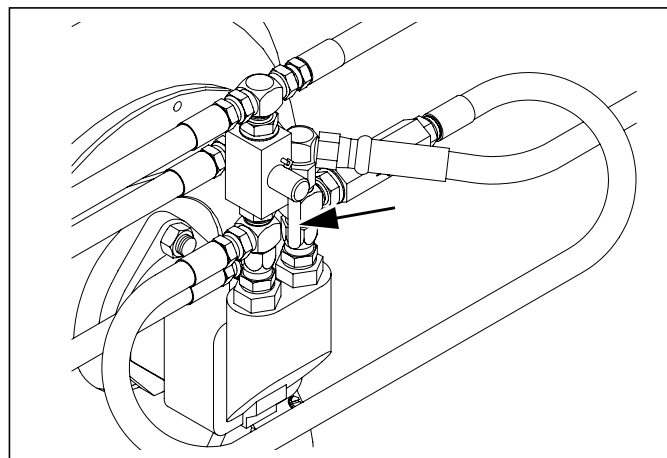


Figure 77
Fan Shutoff Valve (Open)

29582

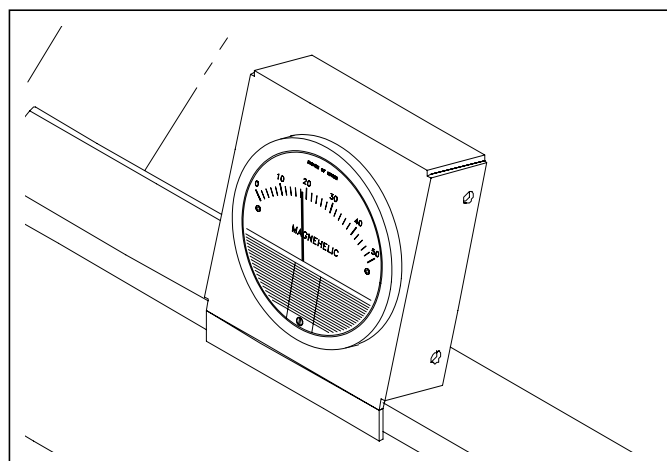


Figure 78
Fan Air Pressure

26425

Recommended Fan Speeds

Seeds	Fan RPM
Sunflowers	2,250 to 3,000
Wheat	3,250 to 4,000
Soybeans	2,750 to 3,500
Milo	3,250 to 4,000

Implement Lift Switch Adjustment

Refer to Figure 79, which depicts a model NTA3510 drill.

An implement lift switch on the drill turns seed metering off when the implement is raised. To adjust the height at which seed metering is turned off, first locate the lift switch on the implement. See table below.

CAUTION

Do not place any part of body under implement while making adjustments.

Drill Model	Lift Switch Location
CTA4000	Lift arm, mainframe front
CTA4000HD	Lift arm, mainframe front
NTA3010	Right rear parallel lift arms
NTA3510	Right rear parallel lift arms
3N-4010HDA	Right rear parallel lift arms

CTA4000 and CTA4000HD Lift Switch

Raise openers completely. Lock them up by moving the FIELD/TRANS valve handle to TRANS. Loosen switch mount bolts and slide switch up or down until the flexible switch toggle makes contact with the top of the opener sub-frame arm (toggle is bent up). Adjust the switch until the toggle activates the switching.

NTA3010 and NTA3510 Lift Switch

Lower the implement until at a height where seeding should start (usually just above ground). Turn off the tractor and remove the key. Securely support implement frame at this height with jack stands or blocks. Loosen switch bracket bolts and slide switch up or down until the flexible switch toggle is just past the point at which the switch is activated (flexible switch toggle not contacting anything).

3N-4010HDA Lift Switch

Lower the implement until at a height where seeding should stop (usually just above ground). Turn off the tractor and remove the key. Securely support implement frame at this height with jack stands or blocks. Loosen switch bracket bolts and slide switch up or down until the flexible switch toggle makes contact with the bottom of the implement rear parallel lift arm. Adjust the switch until the toggle activates the switching.

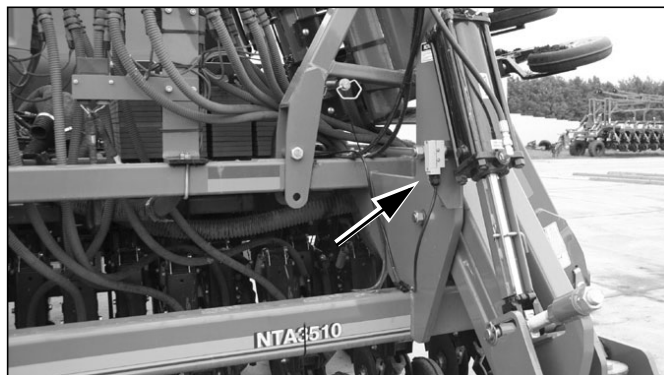


Figure 79
NTA Height Switch

26366

Note: The implement lift switch has three wires (black, red and green). In order for the switch to work properly, the correct two leads must be connected to the lift switch extension cable.

The extension cable black lead always connects to the switch black wire.

The extension cable red lead must connect to the switch wire color indicated in the table below, for your implement.

Drill Model	Lift Switch Extension Cable Red Wire to...	Switch State Drill Raised
CTA4000	Switch Wire: Red	Closed
CTA4000HD	Switch Wire: Red	Closed
NTA3010	Switch Wire: Green	Open
NTA3510	Switch Wire: Green	Open
3N-4010HDA	Switch Wire: Red	Closed

Clutch Lock-Up

In the event of a mechanical or electrical failure of the clutch or its controlling circuit, the clutch may be mechanically locked in the engaged mode, using three bolts stored near the hand crank.

This permits completion of a planting session when repair or replacement is not an immediate option.

Note: When locked up, meters will continue supplying seed even with the drill raised. For short moves without seeding, set variable rate gearboxes to 0. For longer moves, remove lock-up bolts or remove chains.

Refer to Figure 80 and Figure 81

1. Remove the three M8-1.25×14mm metric bolts ③ from their storage locations near the clutch. Save the nuts.
2. At the clutch, align the cutouts ① with the holes ②.
3. Insert the M8-1.25×14mm metric bolts ③.

If you observe half the hole obstructed by a metal disc ④, you are not at a cutout.

If the entire hole is obstructed by a metal disc ④, you are not at a cutout.

When at a cutout, the bolt will screw in with minimal resistance until the bolt head reaches the clutch face.

Note: Use only the provided 14 mm length bolts. Longer bolts will damage the clutch. Shorter bolts may not effect a lock-up. Replacement bolts are Great Plains part number 802-782C.

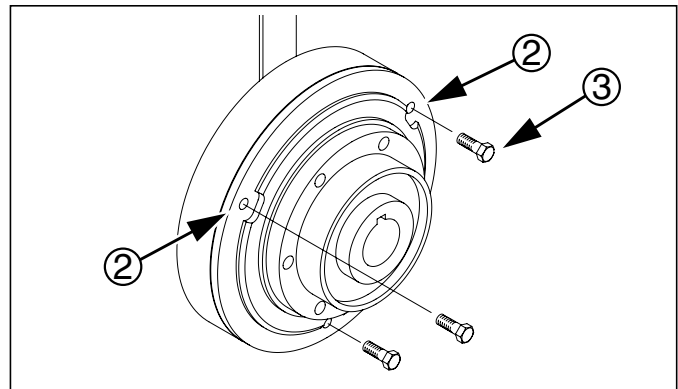


Figure 80
Electric Clutch Lockup

22906

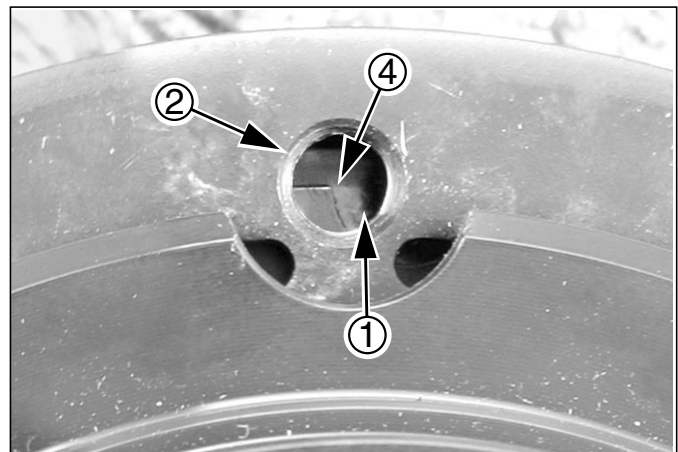


Figure 81
Clutch Plate Nearly at Cutout

26168



Troubleshooting

This chart primarily covers problems arising from air cart issues, although it does include a few drill items.

Also consult the Troubleshooting chart for the drill implement.

Problem	Cause	Solution
Planting too little	Air leaks	Check hopper lids, meter seals, manifold caps and seed hose connections. Adjust latch and/or replace seals as needed.
	Fan speed too low	See “Recommended Fan Speeds” on page 68.
	Fan won't run fast enough.	Tractor must be able to supply 18 gallons/minute at 200 psi.
		Check that hydraulic fan check valve is not installed backward.
	Hydraulic fan running in reverse	Check hydraulic circuit flow direction.
	Height switch operating too low - clutch is disengaging with openers in ground	See “Implement Lift Switch Adjustment” on page 69.
	Incorrect meter setting	Re-check against Seed Rate Charts. Verify calibration.
	Incorrect cart setup sprockets for implement	Re-check against page 19.
	Excessive field speed: chart rates were developed at 6.5 mph (10.5 km/h)	Reduce speed
	Incorrect tire size or air pressure	Check tire size and air pressure, page 87.
	Seed size and weight vary from chart	Calibrate. Adjust rate to compensate.
	Excessive gaps between drill passes	Adjust implement markers.
	Low seed level in seed box	Fill seed box.
	Actual field size is different	Verify field size.
	Plugged seed hose	Clean out seed tube hose.
		Remove excess slack in hoses.
		Re-route hoses to avoid sharp bends.
		Check that metering is actually stopping when drill is raised. Adjust or replace height switch.
	Plugged opener seed tube	Lift up drill, expose bottom of seed tube and clean out.
	Meter sprocket damaged	Replace seed cup sprocket.
	Obstruction in meter or seed tubes (foreign material or uncleaned seed)	Clean meter and seed tube.
	Clutch slippage due to oil in clutch	Disassemble and de-grease clutch. On an emergency basis, use the clutch lock-up procedure on page 70.
	Removed, thrown or worn chains	Check drive chains.

Problem	Cause	Solution
Planting too much	Meter setting too high	Re-check against chart & calibration.
	Incorrect cart setup sprockets for implement	Re-check against page 19.
	Seed size and weight vary from chart	Calibrate. Adjust rate to compensate.
	Actual field size is different	Verify field size.
	Excessive overlap or irregular shaped field	Adjust implement marker.
	Incorrect tire size or air pressure	Check tire size and air pressure, page 87.
	Meter sprocket damaged	Replace if damaged.
No Seed Flow	Seed monitor Master Switch off	Engage seed monitor.
	Height switch out of adjustment or failed.	Check, adjust or replace height switch.
	Chain broken or removed	Inventory chains against routing diagrams.
	Clutch failed	Replace clutch. On an emergency basis, use the clutch lock-up procedure on page 70.
	Clutch circuit failed	Replace failed component or cable. On an emergency basis, use the clutch lock-up procedure on page 70.
	Seed rate set to zero	Check seed rate indicator at meter(s).
	Sprocket loose on shaft	Check all sprocket pins, keys and set screws.
	Meter box completely plugged	Have Parts Manual at hand for parts identification. Remove chain drive to meter. Remove bolts holding meter box to bottom of hopper. Remove and clean out meter.
Uneven seed spacing	Excessive field speed	Reduce speed.
	Unclean seed	Use clean seed.
	Air leaks	Check hopper lids, meter seals, manifold caps and seed hose connections. Adjust latch and/or replace seals as needed.
	Erratic meter clutch	Check for damaged cables and loose connections.
	Build up of seed treatment in meter.	Clean out meter (see above).
	Tower blockage	Check towers for obstructions and plugging. Blockages sometimes move from port to port in towers.
	Seed hose plugged	Stop and raise drill with fan running. Hand-crank meter and check for rows not delivering seed.
	Meter wheel damaged or worn	Check meter sprocket and replace.
Uneven seed depth	Excessive field speed	Slow down. Check Seeding Rate Chart for correct maximum field speed.
	Air cart not level	Check leveling instructions, page 21.
	Planting conditions too wet	Wait until drier weather.

Problem	Cause	Solution
Excessive seed cracking	Excessive field speed	Slow down. Check Seeding Rate Chart for correct maximum field speed.
	Fan speed too high	Check fan speed against recommendations on page 68.
	Dividers missing or damaged in towers	Check and replace as needed,
	Unclean seed	Use clean seed.
	Damaged, old or dry seed	Use clean, new seed.
Chain	Debris in retainer clip	Be sure open end of retainer clips are facing opposite direction of chain travel. Consult chain routing diagrams in Appendix.



Maintenance and Lubrication

Proper servicing and maintenance is the key to long implement life. With careful and systematic inspection, you can avoid costly maintenance, downtime and repair.

Always turn off and remove the tractor key before making any adjustments or performing any maintenance.

WARNING

Crushing Hazard:

You may be severely injured or killed by being crushed under a falling implement. Always have frame sufficiently blocked up when working on, and particularly under implement.

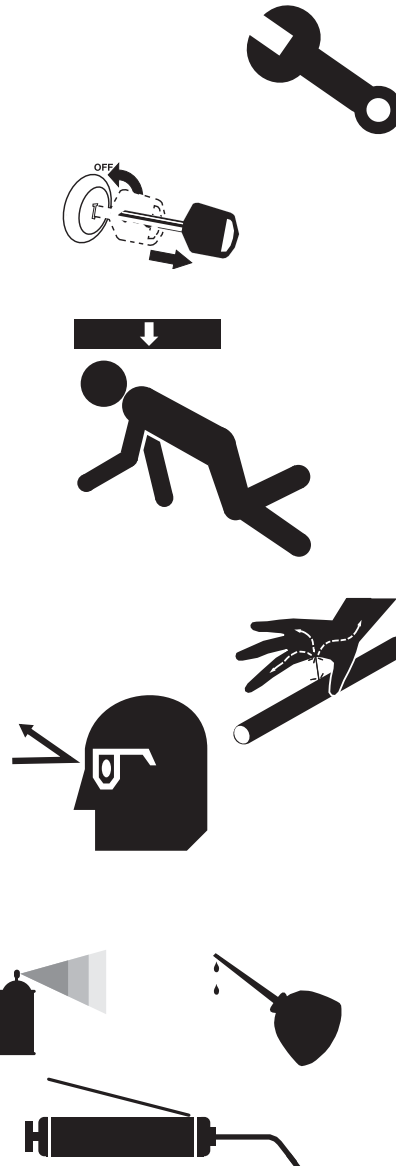
WARNING

High Pressure Fluid Hazard:

Escaping fluid under pressure can have sufficient pressure to penetrate the skin. Check all hydraulic lines and fittings before applying pressure. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, and wear heavy gloves to check for suspected leaks. If injured, seek immediate medical attention from a health care provider familiar with this type of injury.

After using drill for several hours, check all bolts to be sure they are tight.

1. Securely block cart before working on it.
2. Lubricate areas listed under “**Lubrication and Scheduled Maintenance**” on page 80.
3. Adjust idlers to remove excess slack from chains. Clean and use chain lube on all roller chains as needed.
4. Check for air leaks at lids, doors, seals, caps and hose connections.
5. Inflate tires as specified on “**Tire Inflation Chart**” on page 87.
6. Replace any worn, damaged or illegible safety decals. Order new decals from your Great Plains dealer. “**Safety Decals**” on page 6.



Chain Slack

Initially check the drive chains after the first 10 hours of drill use. Thereafter, check the chains every 100 hours.

Hub Chain

Refer to Figure 82

This chain connects the hub sprocket weldment to a sprocket on the main drive shaft ① at the left rear cart wheel.

Check chain ② tension. Chain should have $\frac{1}{8}$ inch (3 mm) slack. To adjust, loosen the bolts ③ holding the main-shaft bearings and slide the main shaft. Retighten bolts.

Note: If you make any adjustments to the hub chain, check tension on the chain from the main shaft to clutch shaft (next item, not shown in Figure 82).

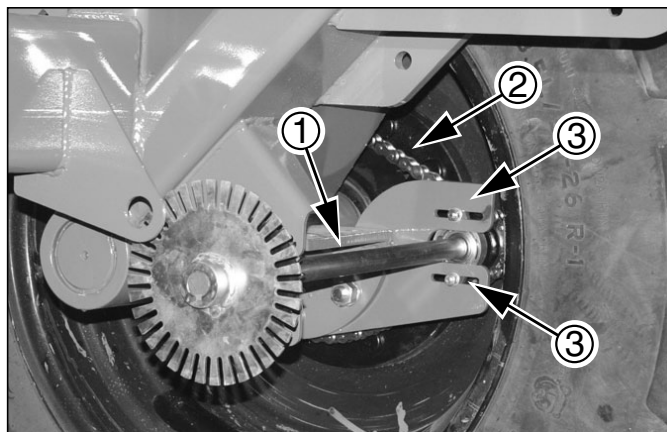


Figure 82
Hub Chain

26362

Clutch Input Chain

Refer to Figure 83 and Figure 84

This chain ① connects a driving sprocket ② on the main drive shaft ③ to a driven sprocket ④ on the clutch jackshaft ⑤ above the meter gearboxes.

Check that both driving and driven sprockets are aligned (in the same plane of rotation) and that the chain is not skewed. If not, loosen the set screws holding one or both drive sprockets in place and move them until they are aligned. Re-tighten the set screws.

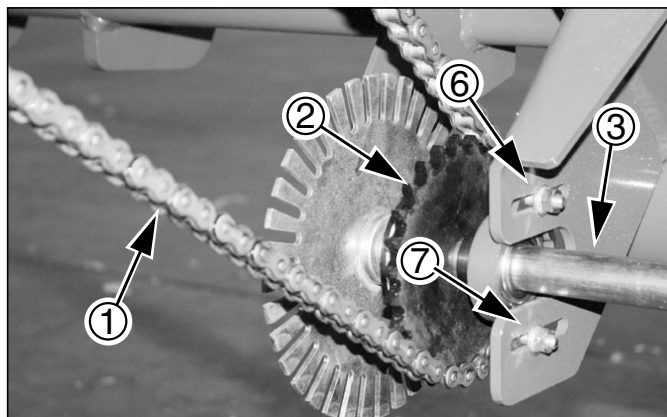


Figure 83
Clutch Input Chain, Lower

26363

Refer to Figure 84 and Figure 83

Check chain tension. Lower span should have $\frac{1}{2}$ inch (13 mm) slack at the midpoint. To tighten, loosen idler bolts ⑥ and adjust idlers. Do not adjust main shaft bolts ⑦ except to keep main shaft parallel to wheel spindle if significant adjustment was necessary on hub chain.

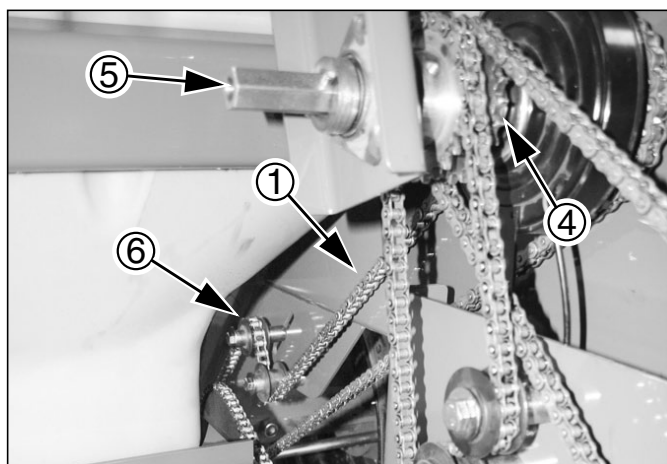


Figure 84
Clutch Input Chain, Upper

26364

Gearbox Input Chains

Refer to Figure 85

These chains connect the clutch output to each of the two gearboxes.

Check chain tension. The rear spans should have $\frac{1}{2}$ inch (13 mm) slack at the midpoint. To adjust, loosen the bolts holding the upper idlers ① and move idler. Retighten the bolts.

Note: The gearbox output chains are tensioned by spring idlers and require no adjustment.

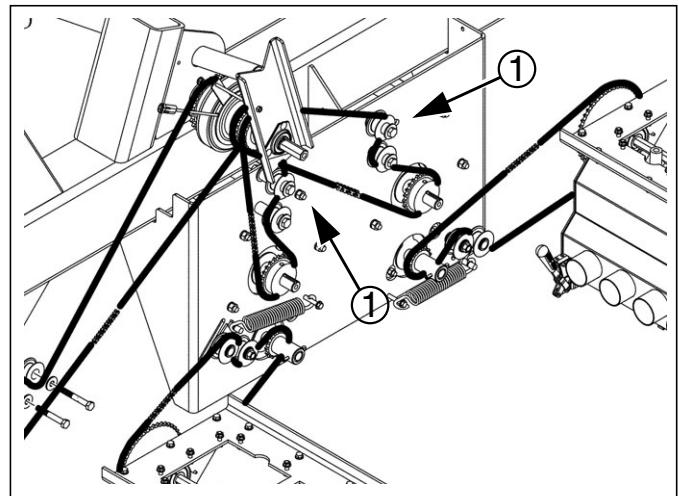


Figure 85
Gearbox Input Chains

26313

Chain Maintenance

Initially check the drive chains after the first 10 hours of drill use. The slack of new chains tends to increase during the first few hours of operation due to seating. Thereafter, check the chains every 100 hours.

Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.

Chain Slack

Refer to Figure 86, which, for clarity, greatly exaggerates slack, and omits the idlers.

1. Measure the span ① for allowable slack:
Locate the longest span of each chain (usually the span which does not run through the idlers).
2. Determine the ideal slack:
Long chains (over 91 cm / 36 inches):
 $\frac{1}{4}$ inch per foot (2.1 cm/m)
Vertical short chains:
 $\frac{1}{4}$ inch per foot (2.1 cm/m)
Horizontal short chains:
 $\frac{1}{2}$ inch per foot (4.2 cm/m).
3. Measure the current slack ②:
Acting at a right angle to the chain span at the centre of the span, deflect the chain in both directions. The slack is the distance of the movement.
4. Adjust the idlers for ideal slack.

Whenever mounting a chain, make sure the clip at the removable link is oriented to minimize snags.

Refer to Figure 87 (arrow shows chain direction)

Install clip with open end facing away from direction of chain travel (shown by gray or striped arrows in chain routing diagrams).

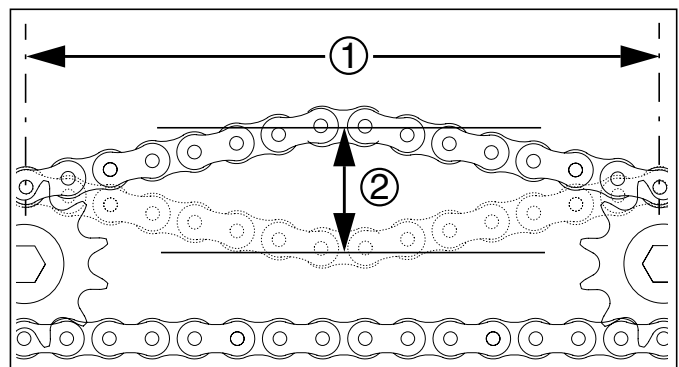


Figure 86
Measuring Chain Slack

27264

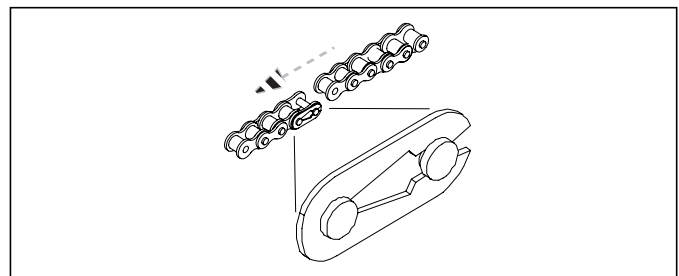


Figure 87
Chain Clip Orientation

26482

Problem Clean-Outs

For normal unloading of residual materials at completion of planting, see “**Unloading the Cart**” on page 47. If, however, parking and storage recommendations have not been followed, it is possible to have hard-to-remove material present.

If the material fails to pass through the clean-out door, take the following steps to remove it. Do not consider entering the hopper until first completing these tasks.

Open the clean-out door.

Remove the strainer and evaluate the problem.

For example:

- If the problem is a single moveable large object, such as a dead animal, fishing out from above may be the solution.
- If the problem is congealed materials, scoop out a sample from above and see if the mass dissolves in water. If so, and there is a small amount of the material involved, rinsing, or rinsing and pumping the hopper from above may be the solution.

For small amounts of residual materials, poking with a long pole may suffice to push it through the clean-out.

If poking doesn't produce satisfactory results, and you intend to try wash-out, at least poke one hole down to the clean-out, so that water can flow out.

If wash-out is contemplated, start by introducing a small amount of water, and make sure that it appears at the clean-out within 15 minutes. If not, you will just be adding water to the problem. The hopper is not designed to hold water at full capacity. Add no more, remove meter box instead, and clean out from below.

Removing Meter Box

Removing the meter box exposes 7×7 inch access holes through which stubborn material may be extracted.

Refer to Figure 88

1. Not shown: Loosen the gearbox-to-meter chain idler and remove the chain. Disconnect inlet and outlet hoses. Disconnect or remove the seed rate sensor.
2. Loosen all the nuts ① securing the meter box ② to the hopper bottom plate ③. Unscrew the nuts to the bolt ends, but do not completely remove the nuts.
3. The meter box has a bead of silicone sealant between it and the bottom plate. Use a pry tool to free the meter box from the bottom plate.
4. Once hanging entirely on the loose bolts, remove the nuts and lower the meter box from the hopper.

When re-mounting the meter box, scrape off the old silicone sealant and replace it with fresh sealant.

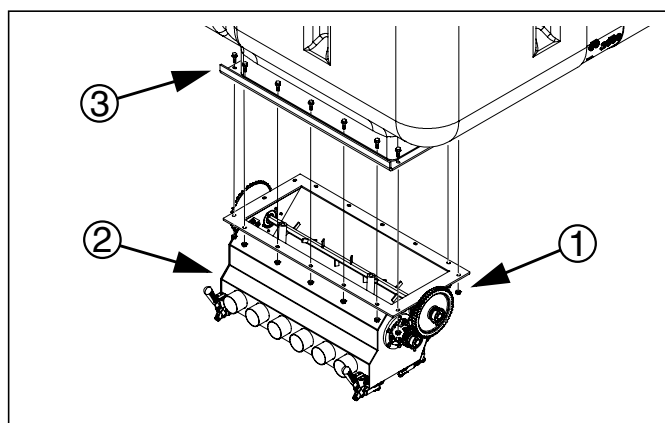


Figure 88
Remove Meter for Cleaning

26408

Hopper Entry

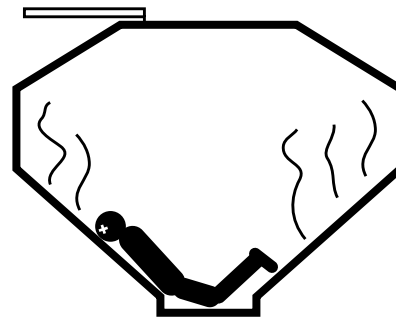
Normal use of the hopper and routine maintenance do not require entry. Ladders are provided in the hoppers, but they are for emergency egress, and are not intended for routine entry. However, do not remove the ladders, as they are also pressure-balancing vent lines.

- ▲ *A hopper that is full or merely appears full can be an entrapment hazard. You can sink entirely into the grain, or into a void, and suffocate in a matter of seconds. Grain bridges and crusts are especially dangerous.*
- ▲ *You can be overcome by hazardous fumes very quickly even in an empty hopper with the lid open.*
- ▲ *A partially full hopper, even with no bridging present, is a suffocation risk. Oxygen levels may be insufficient and/or dust levels may be too high for breathing.*
- ▲ *Do not enter a hopper for loading material.*
- ▲ *Do not enter a hopper for unloading material.*
- ▲ *Do not enter a hopper for routine cleaning.*
- ▲ *Do not enter a hopper for any meter maintenance.*
- ▲ *Never enter a hopper without at least one trained and equipped attendant present.*
- ▲ *Never enter a hopper for any reason unless you fully comply with applicable laws, regulations, rules, agreements, and the instructions in this section. Where applicable laws, regulations, rules, agreements contradict an instruction below, do not follow that instruction.*

Depending on their use, the ADC2350/E and ADC2350B/BE material hoppers may be or become “permit-required confined spaces” under U.S. OSHA regulations (29 CFR 1910.146) and similar regulations, statutes, insurance agreements and local business policy. A written policy and permitting process may be required for any hopper entry.

Hopper entry may be necessary in some unusual circumstances, such as:

- hopper level sensor replacement; or,
- removal of obstructions too difficult to pull out with the meter box removed and not susceptible to fishing or pumping out from the open lid.



⚠ DANGER






Rapid Suffocation Hazard:

Encrusted grain may be loose and flowing beneath the crust. Any hollow spaces are highly likely to have insufficient oxygen and/or toxic gases from microbial action. Falling through a crust in either case can result in death in a matter of seconds. Never enter a hopper to dislodge a crust or bridge.

Should such a situation arise, observe the following precautions:

1. *Evaluate the hazards*
Review the material safety data sheets (MSDS) for any treatments and/or fertilizers used in the hopper since it was last thoroughly cleaned, and the most recent materials even if the hopper was subsequently cleaned. Retain the MSDS information for any medical treatment that might be required.
2. *Designate or engage a team*
Hopper entry is never a single-person activity. At least one attendant/observer is necessary. Give priority to individuals already trained in confined space operations. Designate a leader (who will not be the entrant) with authority to terminate the activity.
3. *Protect the team*
Obtain the necessary safety equipment specified for confined space exposure to those materials, paying particular attention to respiratory support and protection. This may include contaminant detection equipment and positive ventilation to refresh air in the hopper.
4. *Equip the team*
At least one attendant must be equipped with communications capability, to summon outside aid in the event that the hopper worker is overcome. Equip the entrant with a safety harness and safety line.
5. *Train the team*
Review the hazards. Review the procedures. Understand the use of the protective equipment. Know the steps to take in emergencies. Practice them. Train the observer to summon aid, and not attempt hopper entry if the entrant is overcome.
6. *Secure the cart*
Block the cart wheels to prevent movement.
7. *Disrupt crusting or bridging*
From outside the hopper, break up any hard surfacing on top of the material, or forming layers within the material. Such layers are extremely dangerous to stand on.
8. *Empty the hopper*
Follow the steps at “**Unloading the Cart**” on page 47. If a blockage makes this impossible, use an external pump line to remove as much material as possible without performing a hopper entry. Pump until at least some material is exiting the clean-out door. Leave the clean-out door open.
9. *Clean the hopper*
From the outside at the walkboard, power-wash the inside of the hopper. Use a mild detergent sprayer. Rinse thoroughly.
10. *Air the hopper*
Leave the hopper lid and clean-out door open, and do not commence work until the rinse water has completely evaporated.
11. *Plan the work. Work the plan.*
Postpone the work if any team members, equipment or other resources are missing, or weather/lighting conditions are not favorable. Terminate and evacuate if any unexpected situations arise.

Lubrication and Scheduled Maintenance

 Multi-purpose spray lubricant	 Multi-purpose grease lubricant	 Multi-purpose oil lubricant	 Inspection 34208	 50 Intervals (operating hours) at which service is required
---	--	---	--	---

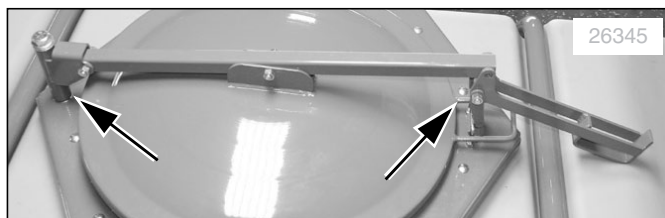
Hopper Lid Pivot Bar and Clamps



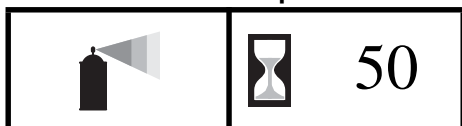
1 pivot and 1 clamp each of 2 lids; 4 sites total

Type of Lubrication: Spray

Quantity: Coat thoroughly



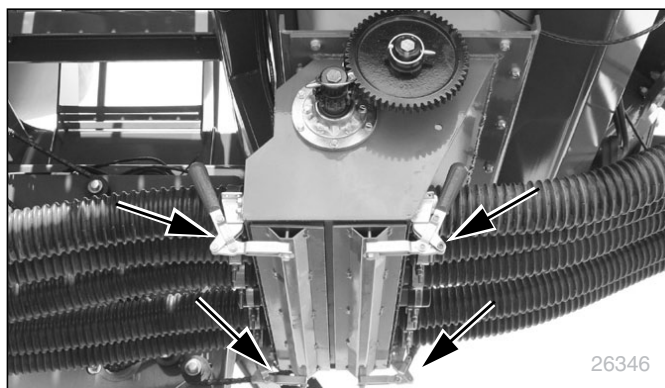
Meter Box Door Clamps



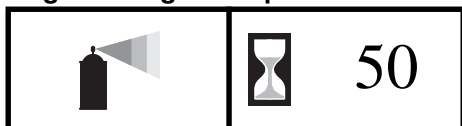
2 clamps each of 4 doors; 8 total

Type of Lubrication: Spray

Quantity: Coat thoroughly



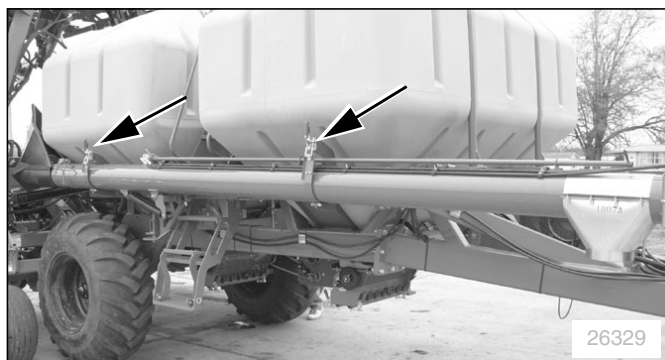
Auger Storage Clamps



2 clamps

Type of Lubrication: Spray

Quantity: Coat thoroughly

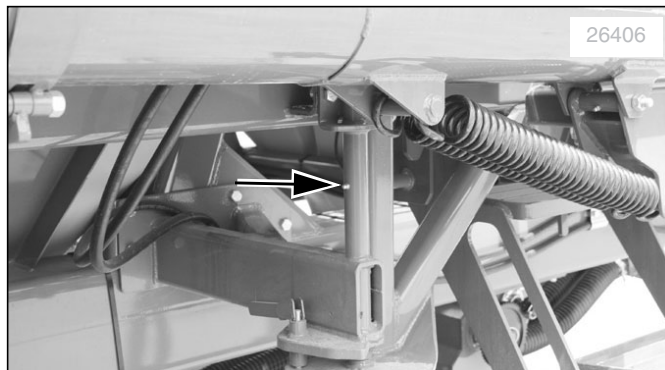


Auger Swing Arm: Mount Pivot

1 zerk each pivot; 3 total

Type of Lubrication: Grease

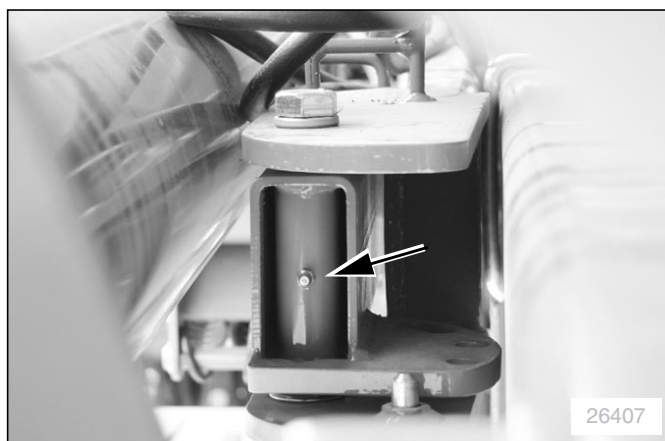
Quantity: Until Grease emerges

**Auger Swing Arm: Outer Pivot**

1 zerk

Type of Lubrication: Grease

Quantity: Until Grease emerges

**Hub Chain**

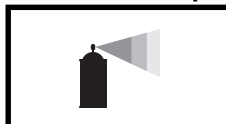
1 chain, inside left wheel

Type of Lubrication: Chain Lube

Quantity = Coat thoroughly

Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.



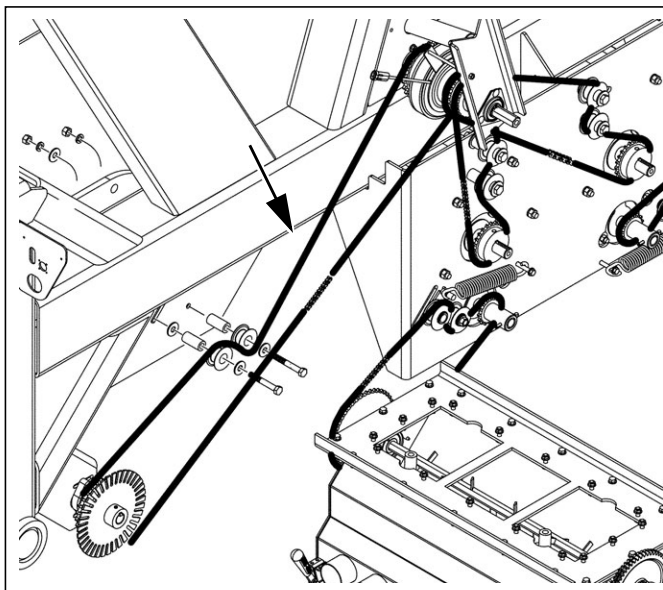
Driveshaft Output/Clutch Input Chain**As Required**

1 chain, from left wheel to clutch

Type of Lubrication: Chain Lube

Quantity = Coat thoroughly

Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.

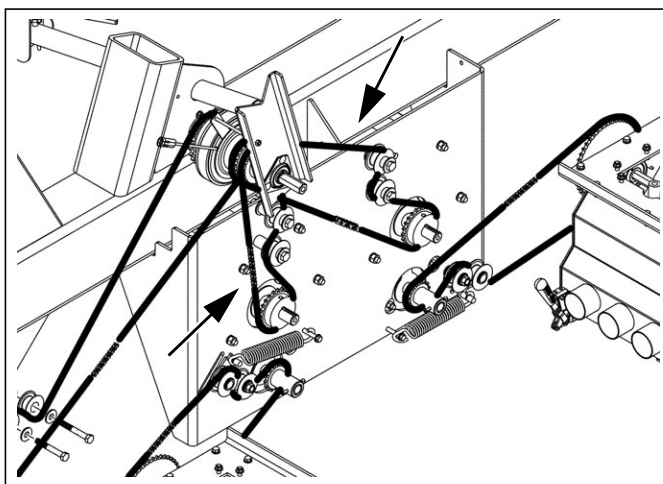
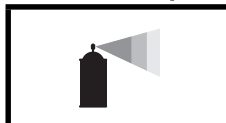
**Clutch Output/Gearbox Input Chains****As Required**

1 chain each gearbox; 2 total

Type of Lubrication: Chain Lube

Quantity = Coat thoroughly

Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.

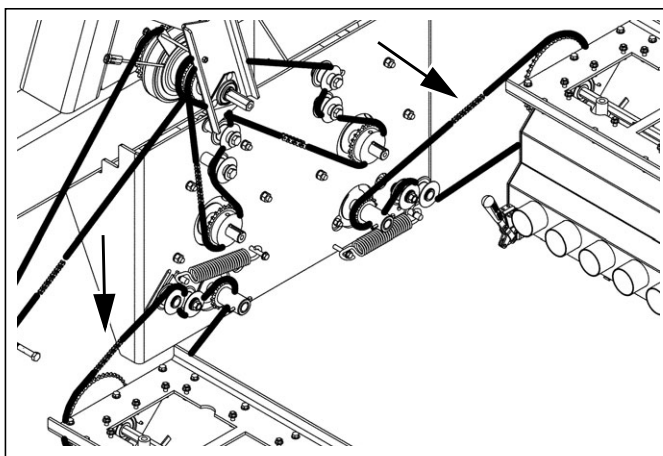
**Gearbox Output/Meter Input Chains****As Required**

One chain each meter; 2 total

Type of Lubrication: Chain Lube

Quantity = Coat thoroughly

Lubricate chains any time there is a chance of moisture, and when being stored at the end of the planting season.

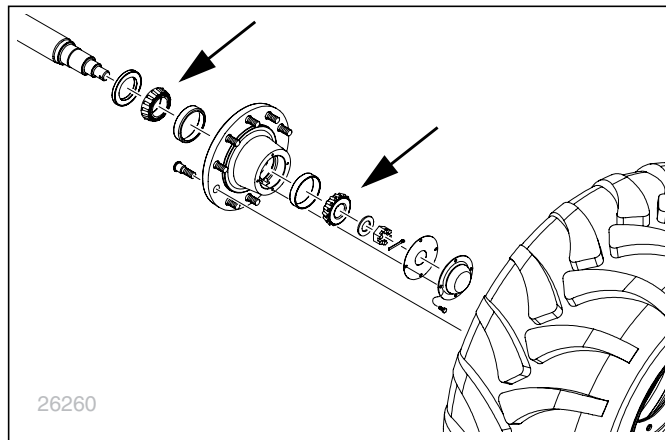
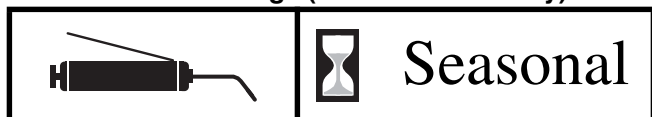


Main Wheel Bearings

2 bearings each wheel, 2 wheels; 4 total

Type of Lubrication: Grease

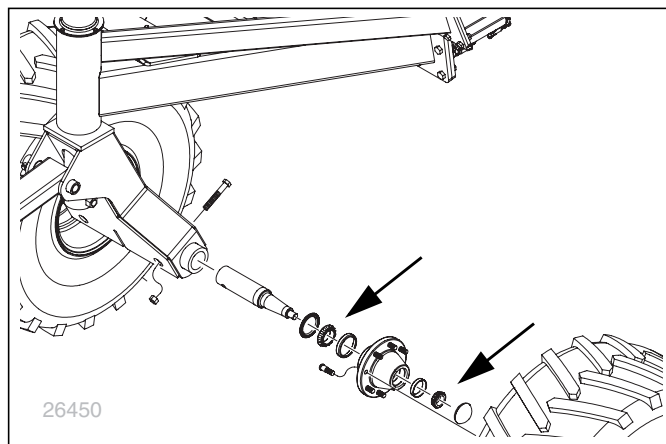
Quantity: Re-pack

**Caster Wheel Bearings (ADC2350B/BE only)**

2 bearings each wheel, 2 wheels; 4 total

Type of Lubrication: Grease

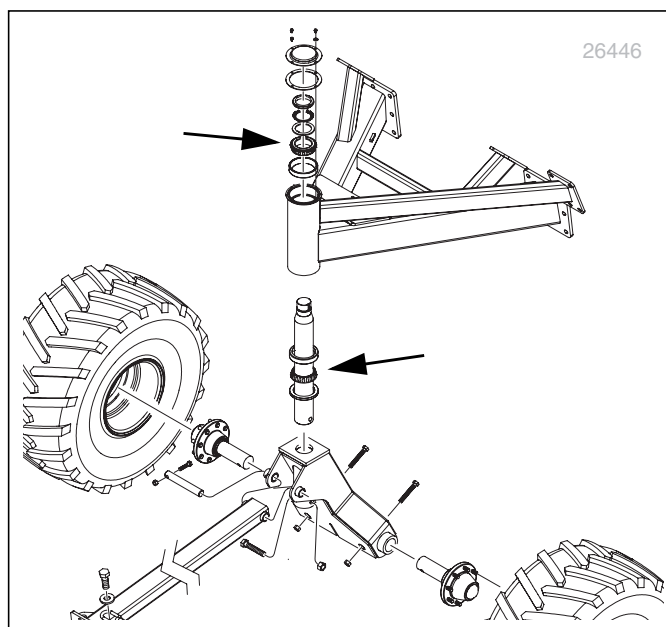
Quantity: Re-pack

**Caster Pivot (ADC2350B/BE only)**

2 bearings

Type of Lubrication: Grease

Quantity: Re-pack



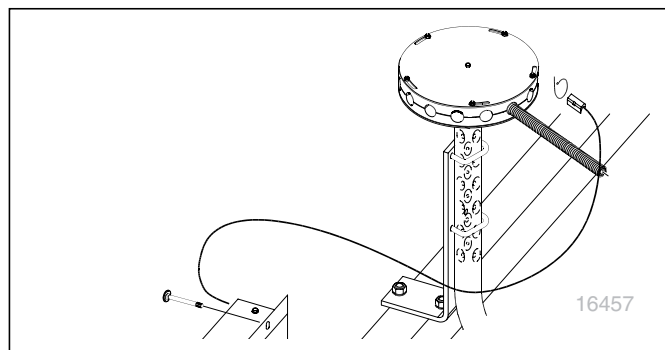
Options

Blockage Detector

The seed monitor supports sensors that monitor for plugging in the one-inch, secondary hoses. The package includes programmable blockage modules for each tower and flow sensors for each secondary seed hose. The blockage modules signal the monitor when flow stops at a sensor. The monitor then sounds an alarm and identifies the problem hose.

To order blockage sensors, contact your Great Plains dealer.

Implement, Row Spacing	Part Numbers
CTA4000/HD-5010, 10 inch	168-410A
CTA4000/HD-6575, 7.5 inch	168-409A
CTA4000/HD-8006, 6 inch	168-408A
NTA3010-3610, 10 inch	168-405A
NTA3010-4875, 7.5 inch	168-404A
NTA3510-4010, 10 inch	168-407A
NTA3510-5575, 7.5 inch	168-406A
3N-4010HDA-6675, 7.5 inch	168-411A
3N-4010HDA-4810, 10 inch	168-412A



10 inch Seed Monitor Console

The standard Air Drill Carts seed monitor system includes a 10 inch (25.4 cm) LCD color display (diagonal measure).

This console may be purchased separately to upgrade an older 5 inch (12.7 cm) console.

Description	Part Number
DICKEY-john® IntelliAg® 10in monitor	823-255C



Alternate Flute Sets

The standard model ADC2350/E and ADC2350B/BE Air Drill Carts have two fluted wheels (“stars”) and two filler rings in each active meter compartment.

Alternate flute shafts are available for higher (③, ④) rates and for small seeds ⑤. These accessories replace the existing 2-star shaft assembly ② with one having a different star configuration. This provides different seeding rates for the same Range and variable rate gearbox setting. See “**Changing Meter Flutes**” on page 66 for installation instructions.

If your seeding rates need to be higher than those listed in the Seed Rate Manual, select one of the high rate shafts.

- Replacing the standard 2-star shaft with a 3-star shaft ③ increases the seeding rate by approximately 50% (to 150% of standard rate).
- Replacing the standard 2-star shaft with a 4-star shaft ④ increases the seeding rate by approximately double (to 200% of standard rate).

For small seeds (see list at right) or other seeds substantially smaller than 12×4.7 mm ($\frac{1}{2} \times \frac{3}{16}$ inch), the standard shaft may not provide sufficient precision and uniform flow at very low rates. A small seeds flute shaft ⑤ is available that provides two half-width shallow flute stars per compartment.

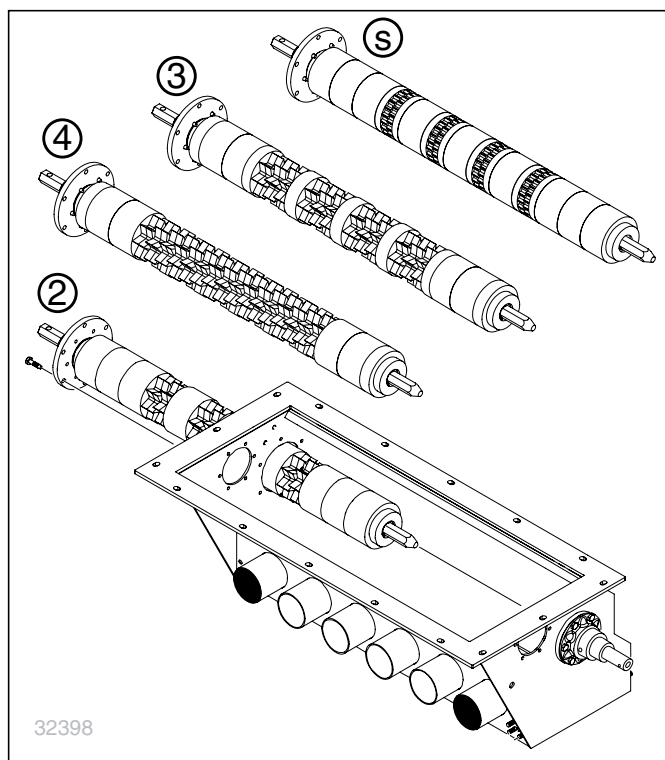
- For compatible seeds, replacing the standard 2-star shaft with the small seeds shaft ⑤ reduces the seeding rate by approximately 80% (to 20% of standard rate).

The kit required depends on the number of towers on the implement and the number of stars desired. Order one kit per meter (two per air cart)

Tested Small Seeds

The 167-085B Seed Rate Manual includes data for Small Seeds shafts and the following seeds:

- Alfalfa (*Medicago sativa*)
- Canola (*Brassica napus* L., *Brassica campestris* L., *Brassica Rapa* var.m)
- Millet (*Pennisetum glaucum*, *Setaria italica*, *Panicum miliaceum*, *Eleusine coracana*)
- Milo (*Sorghum*)
- Orchard Grass (*Dactylis glomerata*)
- Timothy (*Phleum pratense*)



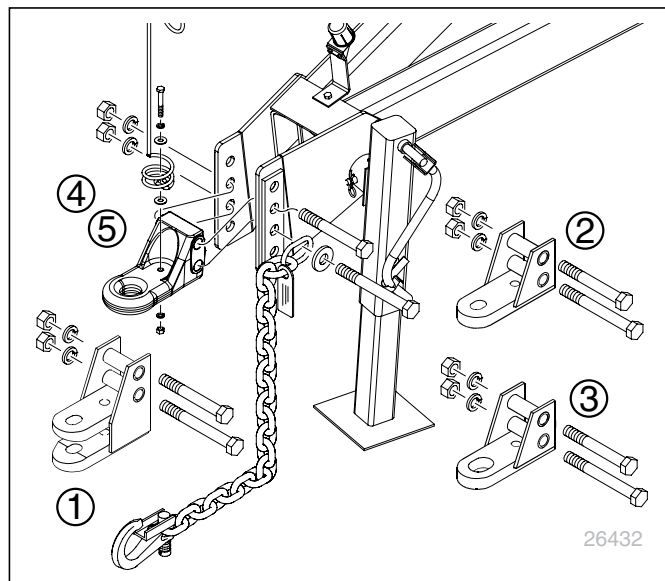
Implement	Towers	Stars per Outlet	Part Numbers
NTA3010	4	3	168-401S
NTA3010	4	4	168-402S
NTA3010	4	2 Small	168-438S
NTA3510	5	3	168-385S
NTA3510	5	4	168-386S
NTA3510	5	2 Small	168-439S
CTA4000	5	3	168-385S
CTA4000	5	4	168-386S
CTA4000	5	2 Small	168-439S
CTA4000HD	5	3	168-385S
CTA4000HD	5	4	168-386S
CTA4000HD	5	2 Small	168-439S
3N-4010HDA	6	3	168-382S
3N-4010HDA	6	4	168-383S
3N-4010HDA	6	2 Small	168-440S

ADC2350/E Hitches

One hitch is selected upon initial order of an ADC2350/E Air Drill Carts, and includes the spring wire loop, safety chain, and all fasteners. Additional hitches may be ordered for conversion in the field, and include extra hitch mounting bolts, lock washers and nuts.

Hitch Description	Option	Part Numbers
① Small Clevis	(72)	170-039A
② Small Strap	(73)	170-059A
③ Large Strap, Welded	(71)	170-038A
④ Large Strap, Cast	(74)	170-004A
⑤ Category V, Cast	(75)	170-073A

Hitch options are not applicable for the ADC2350B/BE cart, which includes a pintle ring compatible with the rear hitch of supported leading drills.



Variable Rate Control

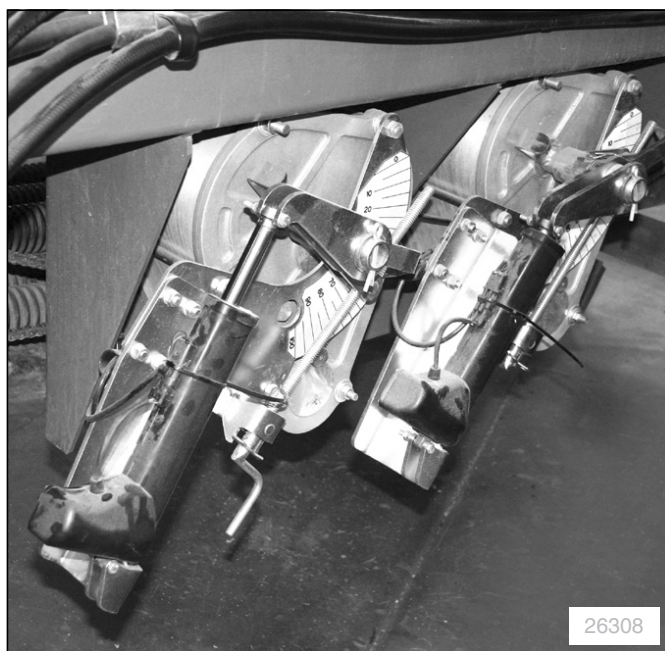
This option replaces the manual meter adjuster jackscrew cranks with linear actuators controlled by the seed monitor.

With this option, seed rate is set directly on the seed monitor virtual terminal, and may be varied during planting directly from the cab.

Description	Part Number
ADC2350 VARIABLE RATE KIT	166-193A

This kit is factory-installed if ordered with the cart. It may also be field-installed on any vintage ADC2350/E or ADC2350B/BE, and includes an installation manual:

166-263M MANUAL INSTALL ADC2350 VAR RT





Appendix

Specifications and Capacities




	ADC2350 or ADC2350E “Pull-Between” Cart	ADC2350B or ADC2350BE “Pull-Behind” Cart
Tractor Requirements	with CTA4000HD: 325 hp with CTA4000: 300 hp with NTA3510: 275 hp with NTA3010: 250 hp	with 3N-4010HDA: 300 hp
Hopper Capacity	175 bushels	175 bushels
Seeding Rates (each meter)	1.5 to 320 lbs/acre (1.7 to 359 kg/ha)	1.5 to 320 lbs/acre (1.7 to 359 kg/ha)
Weight (empty)	8100 lbs (3674 kg)	9800 lbs (4445 kg)
Weight (full)	32,100 lbs (14,560 kg)	32200 lbs (14606 kg)
Hitch Load	9500 lb (loaded) 4309 kg	(negligible)
Hydraulic Circuits	3 circuits required load-sensitive or closed-center 15 to 30 gpm at 2000 psi	1 circuit required load-sensitive or closed-center 15 to 30 gpm at 2000 psi
Hitch	dedicated dual-link	pinth hitch
Width	9 feet 10 inches (3.0 m)	12 feet 6 inches (3.81 m)
Length (auger stowed)	25 feet 0 inches (7.62 m)	25 feet 0 inches (7.62 m)
Height (auger stowed)	11 feet 2 inches (3.4 m)	11 feet 10 inches (3.61 m)
Clearance	23 inches (58 cm)	31 inches (79 cm)
Tire Sizes	23.5L/55-26 12-Ply	30.5L R32 170 Load Index (16 Ply) 21.5L-16.1 14 Ply




Tire Inflation Chart

Tire Inflation Chart	
Tire Size	Inflation
23.5L/55-26 12-Ply	40 psi 276 kPa
30.5L R32 170 Load Index (16 Ply)	30 psi 207 kPa
21.5L-16.1 14 Ply	36 psi 248 kPa

Tire Warranty Information
All tires are warranted by the original manufacturer of the tire. Tire warranty information is included with your manuals or online at the manufacturer's websites listed below. For assistance or information, contact your nearest Authorized Farm Tire Retailer.
ManufacturerWebsite
Firestone www.firestoneag.com
Gleason www.gleasonwheel.com
Titan www.titan-intl.com

Torque Values Chart

Bolt Size	Bolt Head Identification					
						
	Grade 2		Grade 5		Grade 8	
in-tpi ^a	N-m ^b	ft-lb ^d	N-m	ft-lb	N-m	ft-lb
1/4-20	7.4	5.6	11	8	16	12
1/4-28	8.5	6	13	10	18	14
5/16-18	15	11	24	17	33	25
5/16-24	17	13	26	19	37	27
3/8-16	27	20	42	31	59	44
3/8-24	31	22	47	35	67	49
7/16-14	43	32	67	49	95	70
7/16-20	49	36	75	55	105	78
1/2-13	66	49	105	76	145	105
1/2-20	75	55	115	85	165	120
9/16-12	95	70	150	110	210	155
9/16-18	105	79	165	120	235	170
5/8-11	130	97	205	150	285	210
5/8-18	150	110	230	170	325	240
3/4-10	235	170	360	265	510	375
3/4-16	260	190	405	295	570	420
7/8-9	225	165	585	430	820	605
7/8-14	250	185	640	475	905	670
1-8	340	250	875	645	1230	910
1-12	370	275	955	705	1350	995
1 1/8-7	480	355	1080	795	1750	1290
1 1/8-12	540	395	1210	890	1960	1440
1 1/4-7	680	500	1520	1120	2460	1820
1 1/4-12	750	555	1680	1240	2730	2010
1 3/8-6	890	655	1990	1470	3230	2380
1 3/8-12	1010	745	2270	1670	3680	2710
1 1/2-6	1180	870	2640	1950	4290	3160
1 1/2-12	1330	980	2970	2190	4820	3560

Bolt Size	Bolt Head Identification					
						
	Class 5.8		Class 8.8		Class 10.9	
mm x pitch ^c	N-m	ft-lb	N-m	ft-lb	N-m	ft-lb
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

a. in-tpi = nominal thread diameter in inches-threads per inch

b. N·m = newton-meters

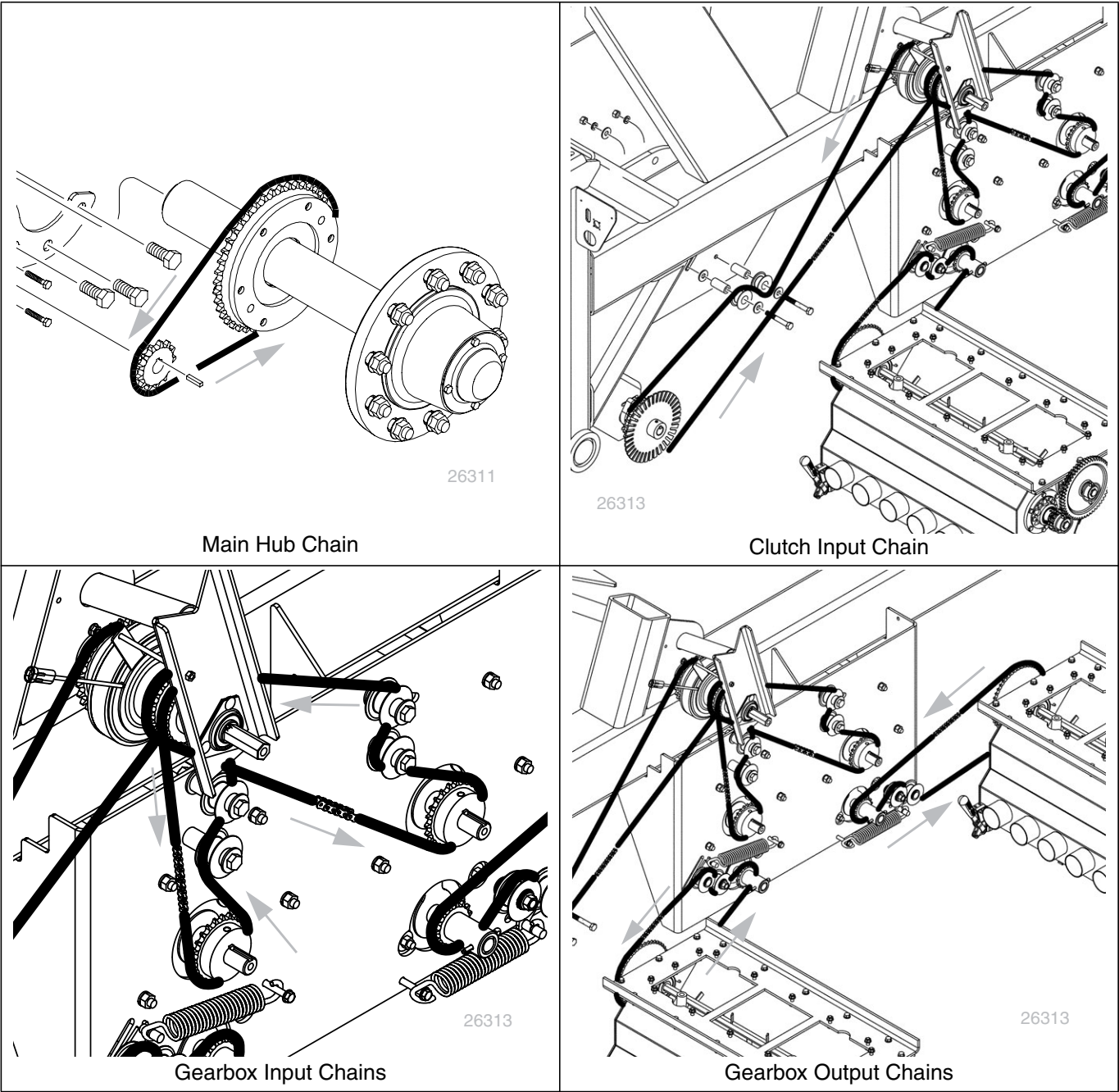
c. mm x pitch = nominal thread diameter in mm x thread pitch

d. ft-lb = foot pounds

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

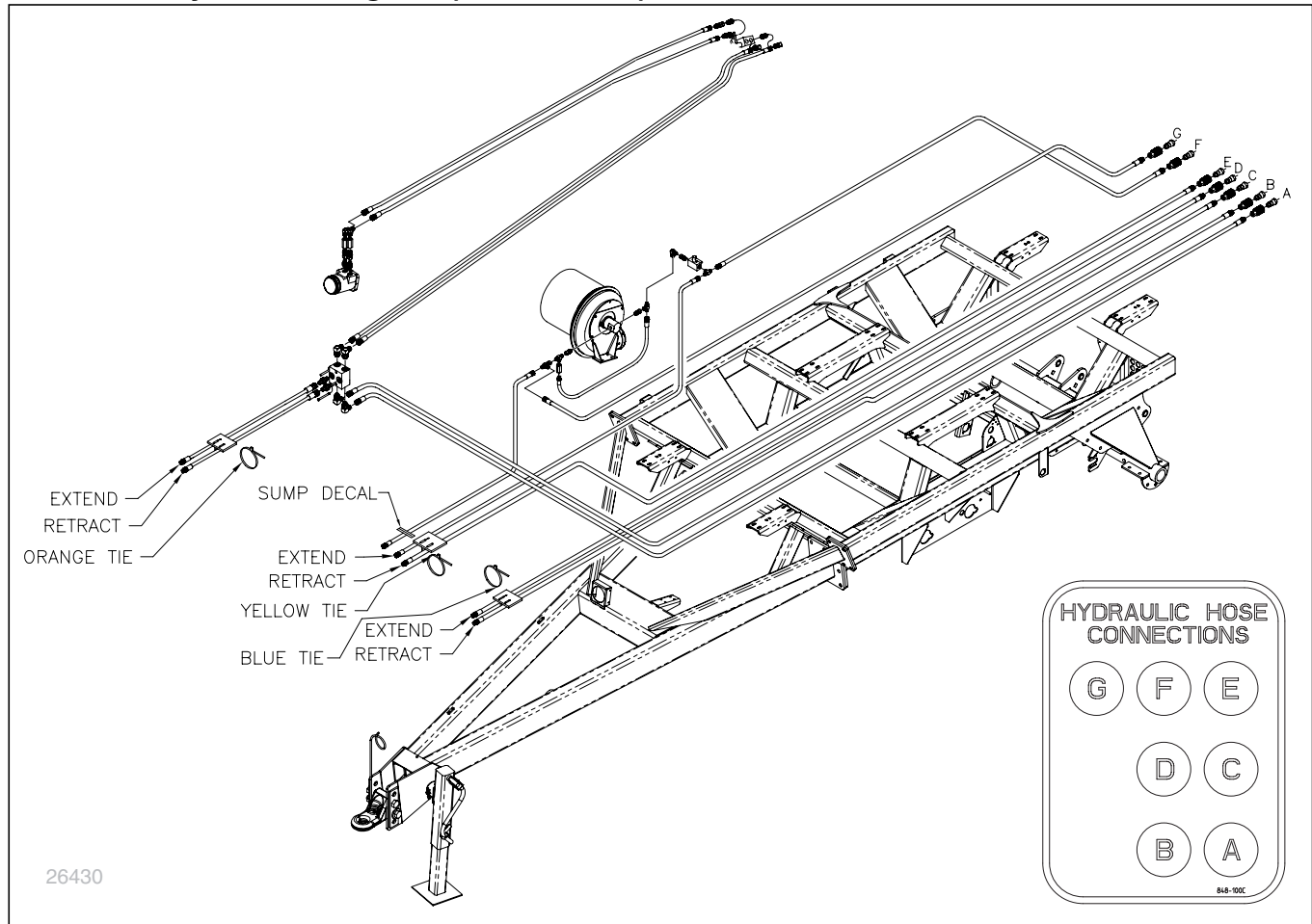
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Chain Routing



Hydraulic Diagrams

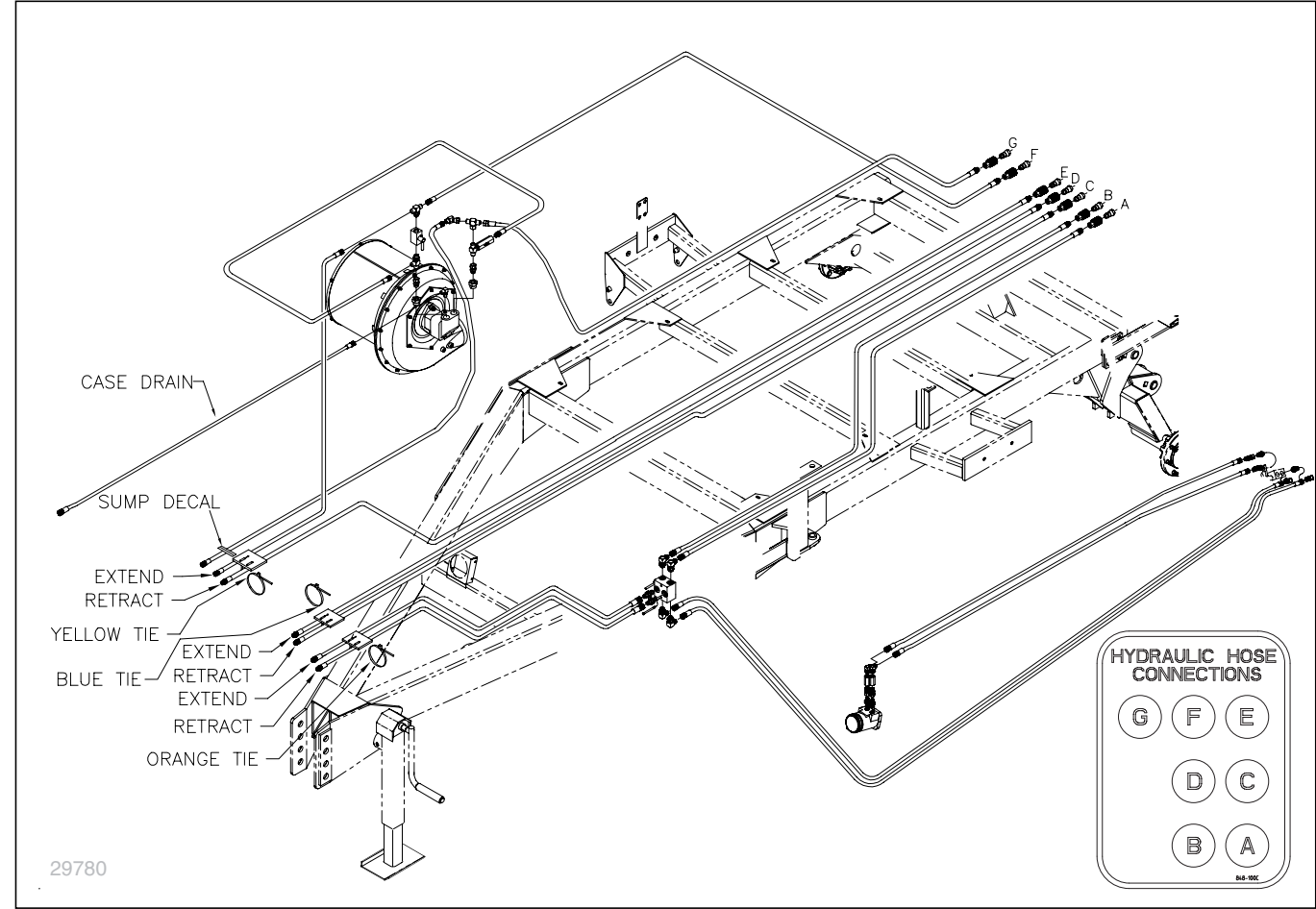
ADC2350/E Hydraulic Diagram (S/N A1157T-)



ADC2350/E Hydraulic Circuits

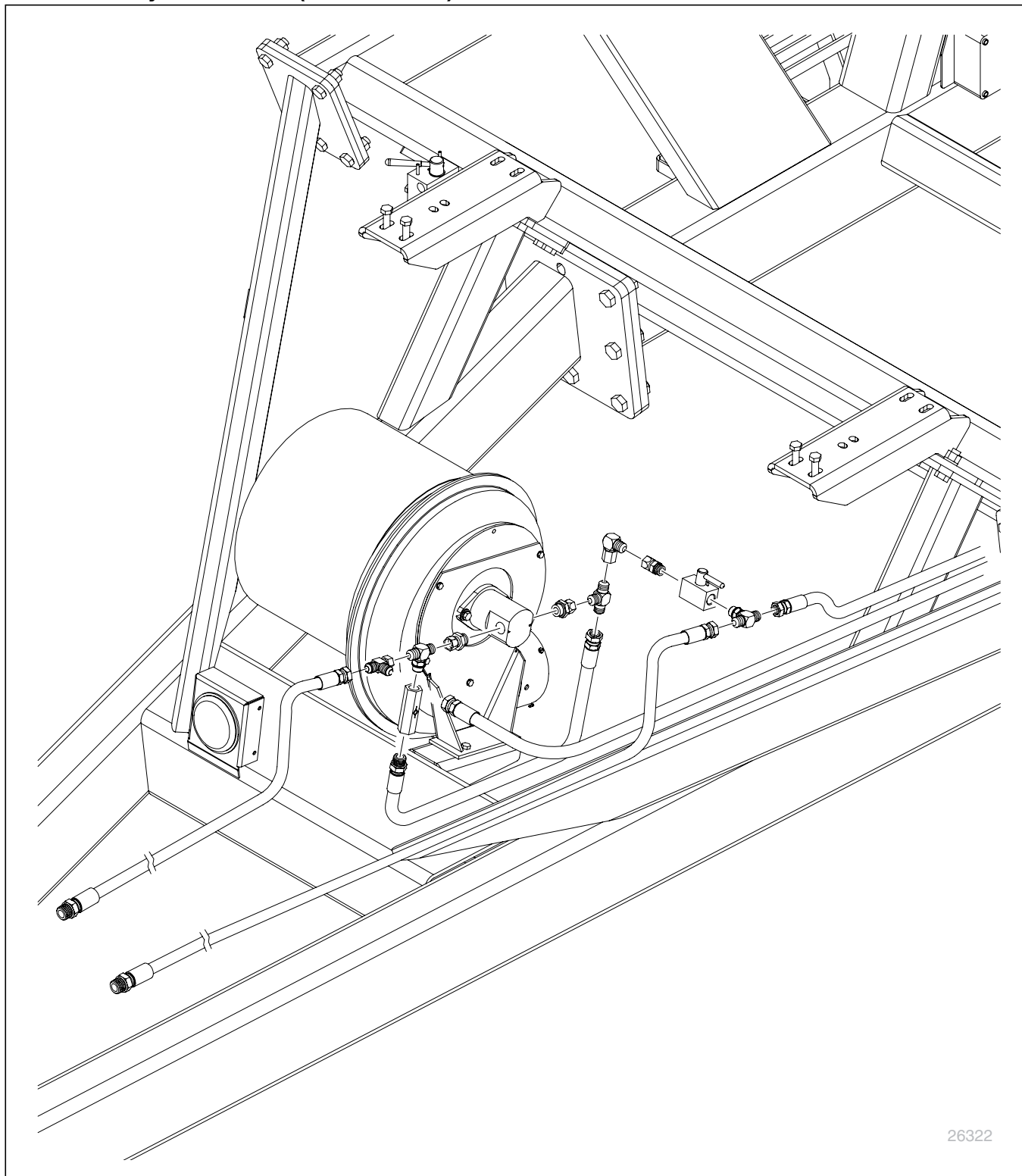
Used With	Orange	Blue	Yellow	Black
<u>Cart</u> CTA4000	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift / Fold Ⓓ Lower / Unfold	<u>Fan</u> (Ⓕ only) Ⓖ Not Used Ⓗ Not Used	<u>Fan Sump Return</u> Ⓙ Sump Return
<u>Cart</u> CTA4000HD	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift / Fold Ⓓ Lower / Unfold	<u>Fan</u> (Ⓕ only) Ⓖ Not Used Ⓗ Not Used	<u>Fan Sump Return</u> Ⓙ Sump Return
<u>Cart</u> NTA3010	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift, Rod End Ⓓ Lift, Base End	<u>Fan</u> (Ⓕ only) Ⓖ Fold, Rod End Ⓗ Fold, Base End	<u>Fan Sump Return</u> Ⓙ Sump Return
<u>Cart</u> NTA3510	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift, Rod End Ⓓ Lift, Base End	<u>Fan</u> (Ⓕ only) Ⓖ Fold, Rod End Ⓗ Fold, Base End	<u>Fan Sump Return</u> Ⓙ Sump Return

ADC2350/E Hydraulic Diagram (S/N A1158T+)

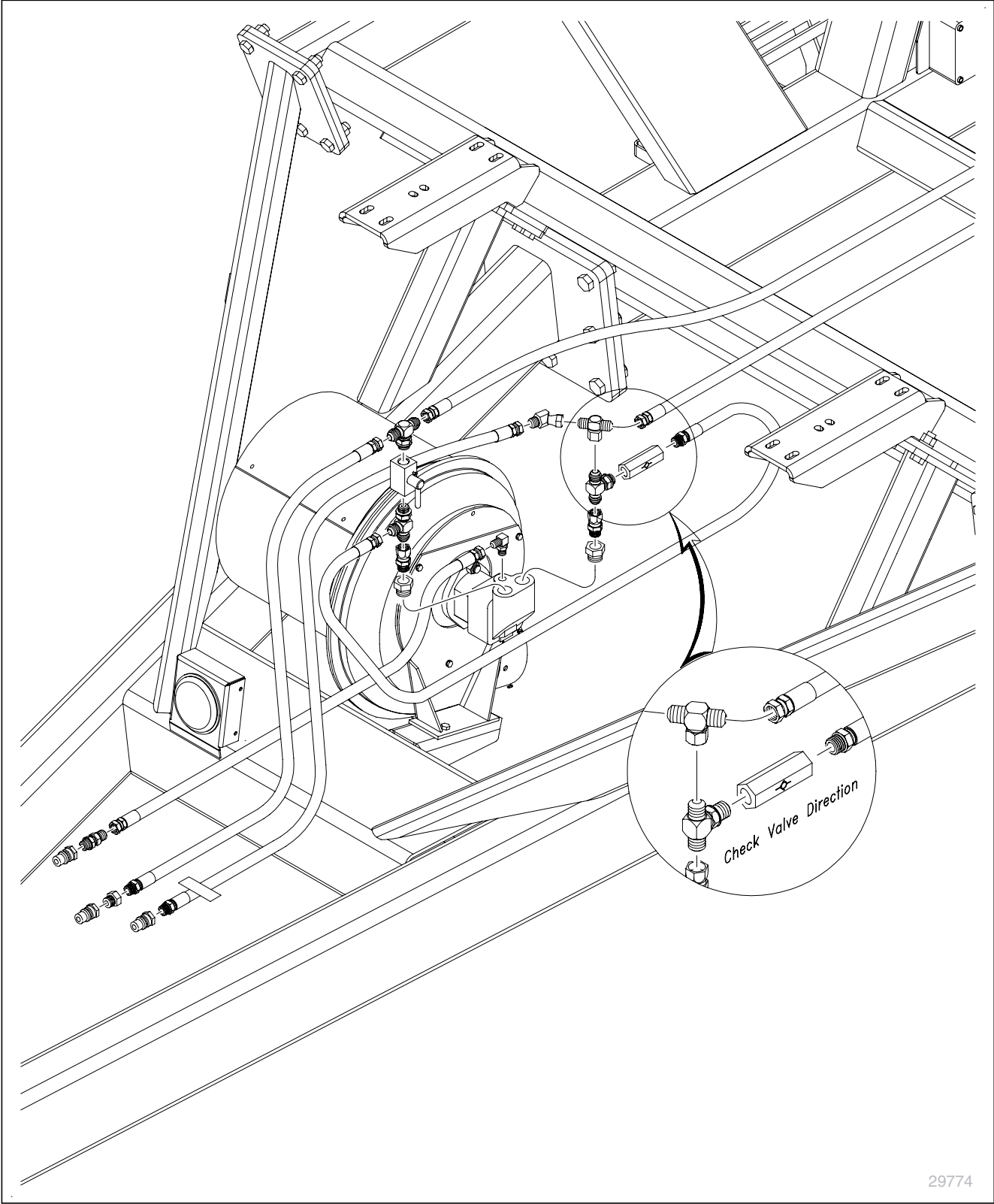


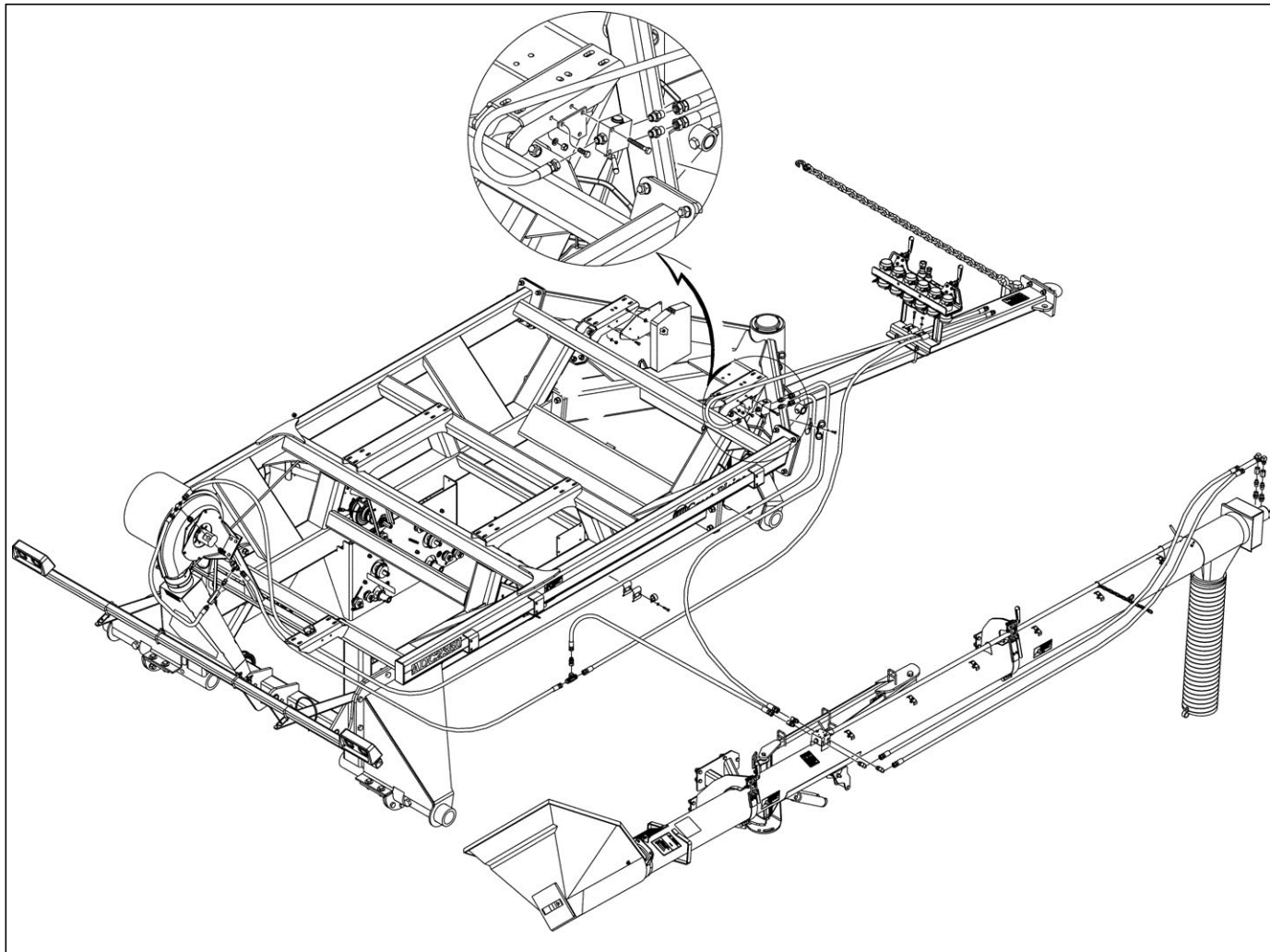
ADC2350/E Hydraulic Circuits

Used With	Orange	Blue	Yellow	Black
<u>Cart</u> CTA4000	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift / Fold Ⓓ Lower / Unfold	<u>Fan</u> (Ⓕ only) Ⓔ Not Used Ⓖ Not Used	<u>Fan Sump Return</u> Ⓒ Sump Return
<u>Cart</u> CTA4000HD	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift / Fold Ⓓ Lower / Unfold	<u>Fan</u> (Ⓕ only) Ⓔ Not Used Ⓖ Not Used	<u>Fan Sump Return</u> Ⓒ Sump Return
<u>Cart</u> NTA3010	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift, Rod End Ⓓ Lift, Base End	<u>Fan</u> (Ⓕ only) Ⓔ Fold, Rod End Ⓖ Fold, Base End	<u>Fan Sump Return</u> Ⓒ Sump Return
<u>Cart</u> NTA3510	<u>Auger</u> Ⓐ Marker Ⓑ Marker	<u>Not Used</u> Ⓒ Lift, Rod End Ⓓ Lift, Base End	<u>Fan</u> (Ⓕ only) Ⓔ Fold, Rod End Ⓖ Fold, Base End	<u>Fan Sump Return</u> Ⓒ Sump Return

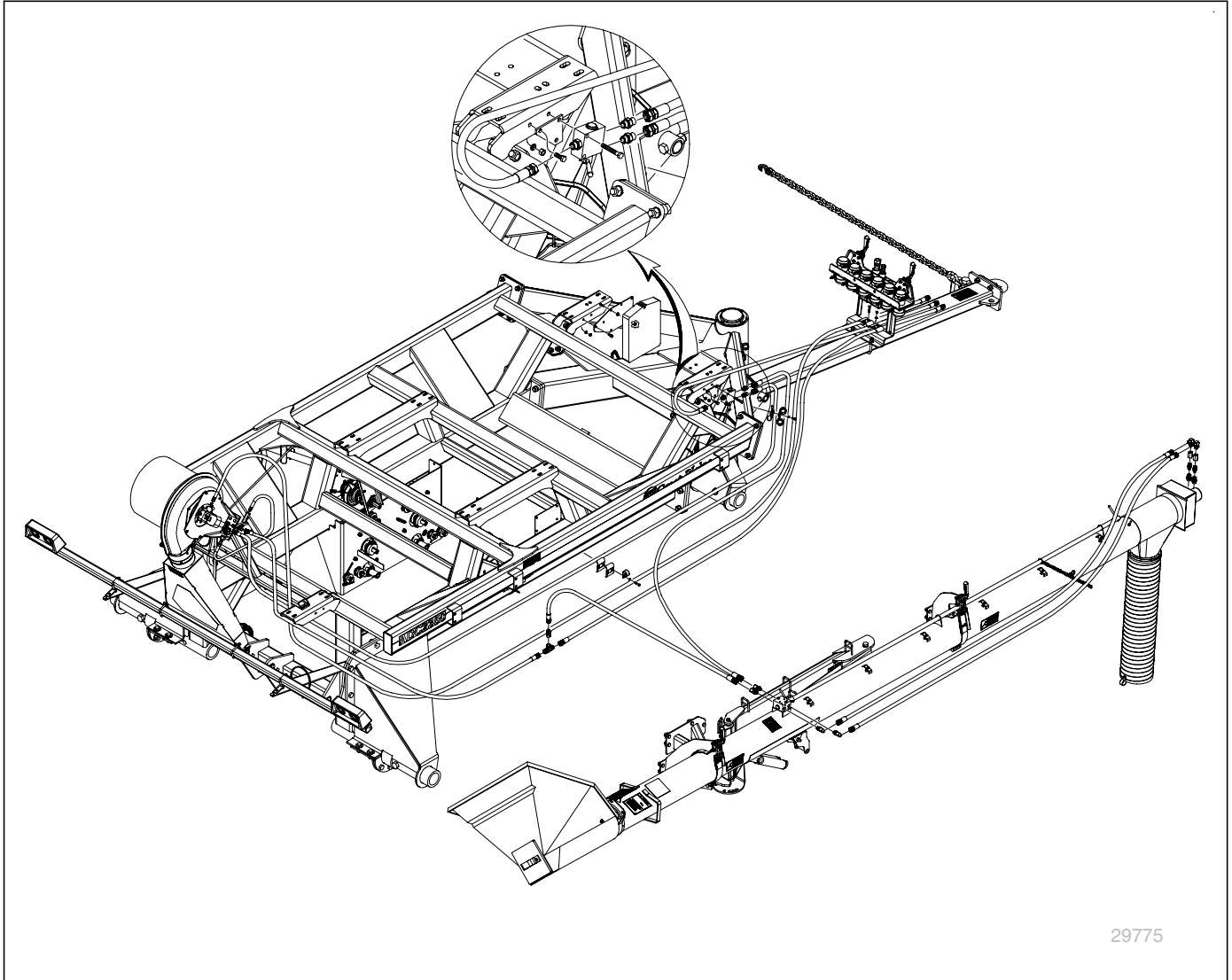
ADC2350/E Hydraulic Fan (S/N A1157T-)

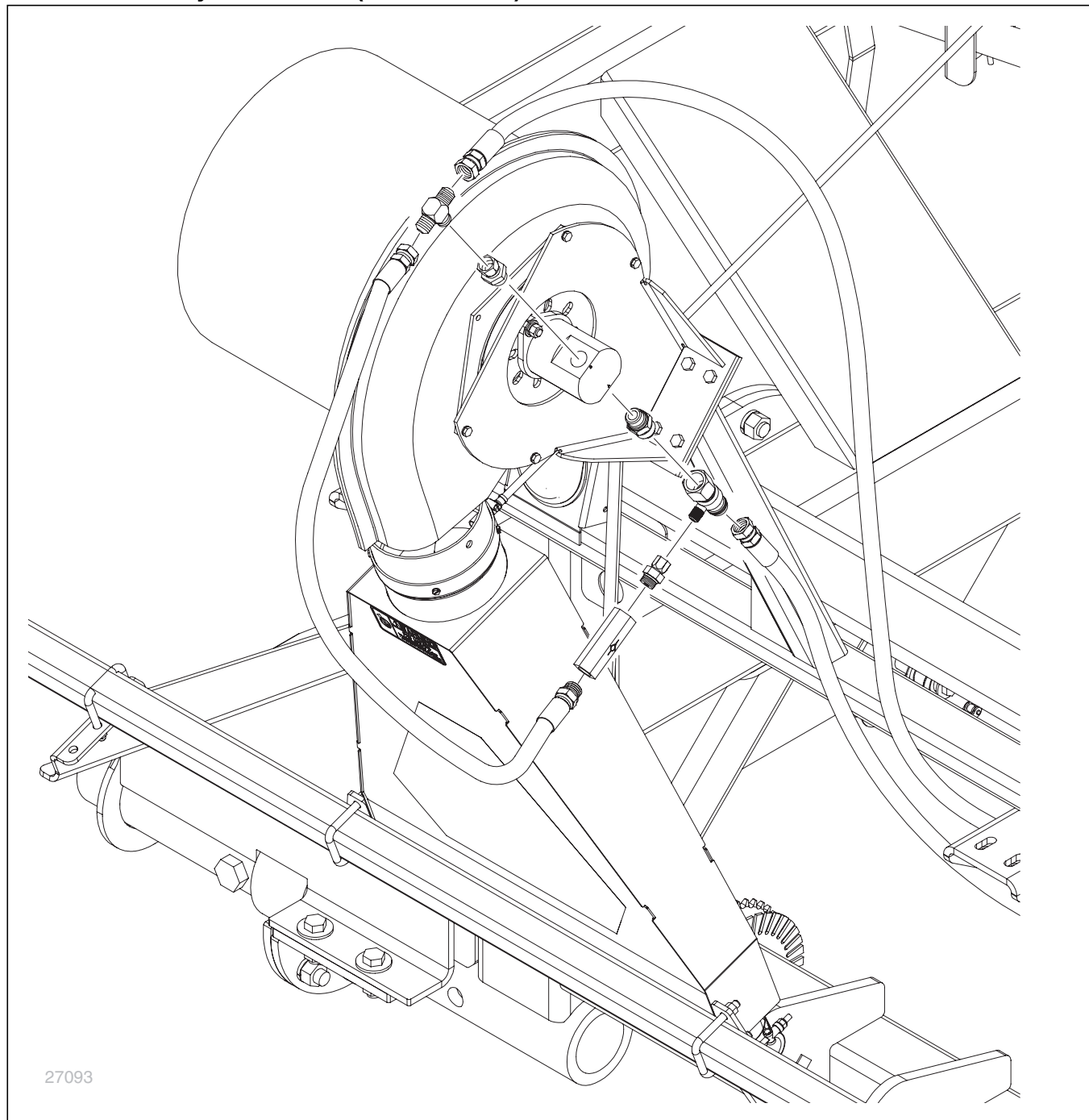
ADC2350/E Hydraulic Fan (S/N A1158T+)



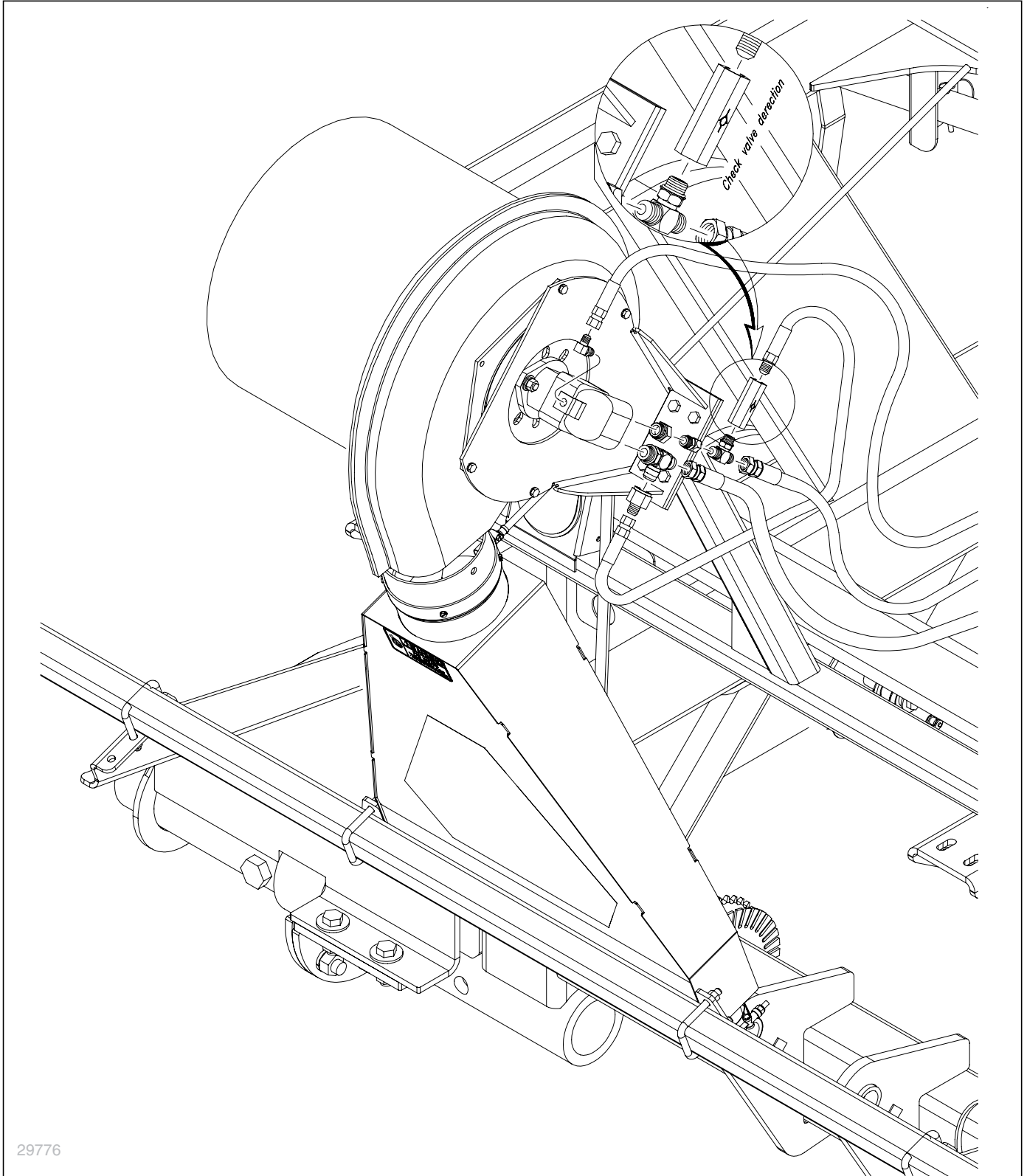
ADC2350B/BE Hydraulic Diagram (S/N A1157T-)

ADC2350B/BE Hydraulic Diagram (S/N A1158T+)



ADC2350B/BE Hydraulic Fan (S/N A1157T-)

ADC2350B/BE Hydraulic Fan (S/N A1158T+)



Warranty

Great Plains Manufacturing, Incorporated warrants to the original purchaser that this seeding equipment will be free from defects in material and workmanship for a period of one year from the date of original purchase when used as intended and under normal service and conditions for personal use; 90 days for commercial or rental purposes. This Warranty is limited to the replacement of any defective part by Great Plains Manufacturing, Incorporated and the installation by the dealer of any such replacement part. Great Plains reserves the right to inspect any equipment or part which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Great Plains' judgement shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. This Warranty shall not apply if the product is towed at a speed in excess of 20 miles per hour.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must be made through such dealer. Great Plains reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct, consequential, or contingent, to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, losses caused by harvest delays or any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Great Plains Manufacturing, Incorporated within 10 days from the date of original purchase.

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